INFORMATION HANDOUT

For Contract No. 10-0P6704
At 10-Tuo-5724

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Project ID 1000000191

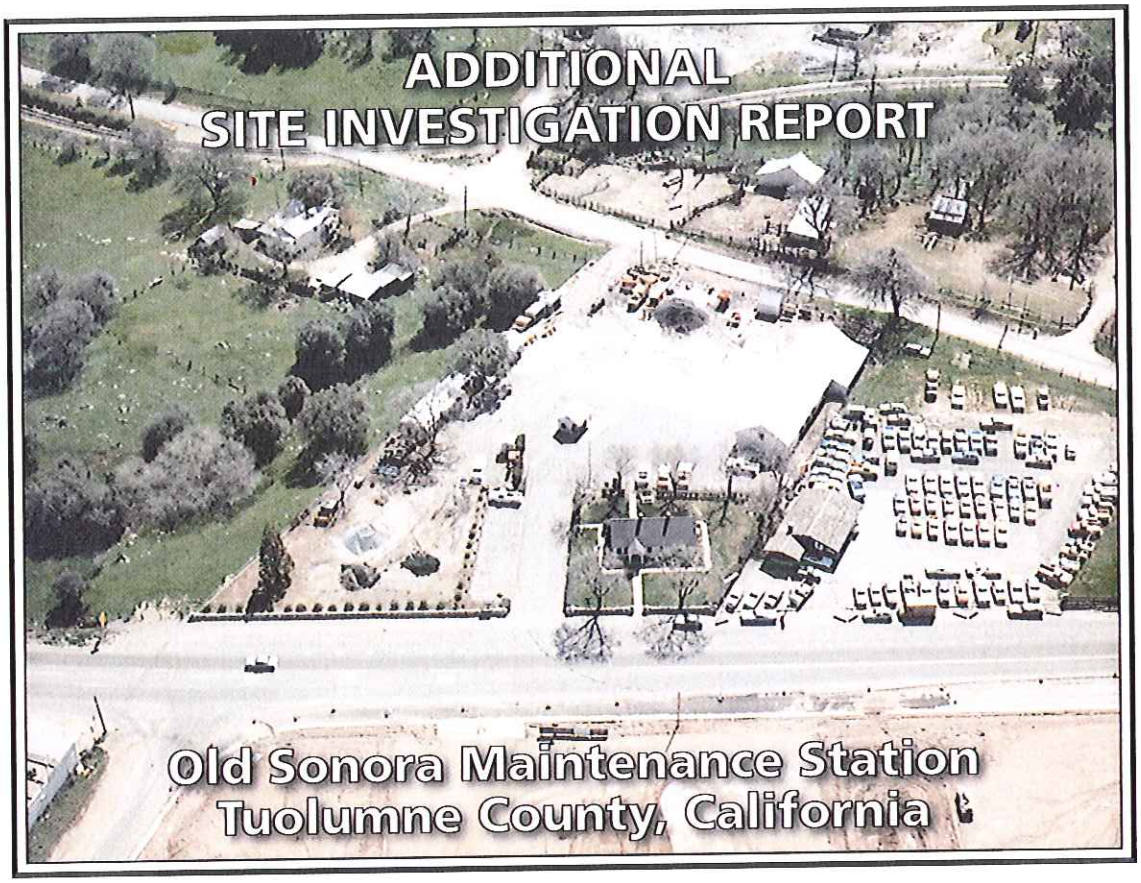
MATERIALS INFORMATION

Additional Site Investigation Report for Old Sonora Maintenance Station Tuolumne County, California, prepared by GEOCON Consultants Inc. dated September 2014

Additional Site Investigation Workplan for Old Sonora Maintenance Station Tuolumne County, California, prepared by GEOCON Consultants Inc. dated March 7, 2014

Final Remediation Plan for Old Sonora Maintenance Station Tuolumne County, California, prepared by GEOCON Consultants Inc. dated December 2010

Remedial Action Options Report and Site Conceptual Model for Old Sonora Maintenance Station Tuolumne County, California, prepared by GEOCON Consultants Inc. dated February 2009



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GEOCON PROJECT NO. S9800-01-13C
TASK ORDER NO. 13

SEPTEMBER 2014

GEOCON
CONSULTANTS, INC.
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. S9800-01-13C
September 2, 2014

Mr. Shawn Ogletree
California Department of Transportation – District 6
Hazardous Waste Branch
855 M Street, Suite 200
Fresno, California 93721

Subject: ADDITIONAL SITE INVESTIGATION REPORT
OLD SONORA MAINTENANCE STATION
785 MONO WAY, SONORA, TUOLUMNE COUNTY, CALIFORNIA
CONTRACT NO. 06A1895, TASK ORDER NO. 13
EA NO. 43-910206, CALTRANS PROJECT NO. 00-0000-0819

Dear Mr. Ogletree:

In accordance with California Department of Transportation (Caltrans) Contract No. 06A1895, Task Order Number 13, and Expense Authorization 43-910206, Geocon Consultants, Inc. has performed additional site investigation services for the Old Sonora Maintenance Station (the Site) located at 785 Mono Way in Sonora, Tuolumne County, California. The accompanying report summarizes the services requested by Caltrans and performed by Geocon to complete activities directed by the Central Valley Regional Water Quality Control Board in their letter dated September 20, 2013.

The contents of this report reflect the views of the author, who is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the State of California or the Federal Highway Administration. This report does not constitute a standard, specification, or regulation.

Please contact us if there are any questions concerning the contents of this report or if we may be of further service.

Sincerely,

GEOCON CONSULTANTS, INC.

Josh Ewert, PG
Project Geologist

PROFESSIONAL GEOLOGIST
JOSH EWERT
NO. 8098
STATE OF CALIFORNIA

Rebecca L. Silva
Project Manager

(1 + 1 CD) Addressee

TABLE OF CONTENTS

ADDITIONAL SITE INVESTIGATION REPORT

1.0 INTRODUCTION

In accordance with California Department of Transportation (Caltrans) Contract No. 06A1895, Task Order (TO) No. 13, and Expense Authorization (EA) 43-910206, Geocon Consultants, Inc. has prepared this Additional Site Investigation (ASI) Report for the Old Sonora Maintenance Station (the Site) located at 785 Mono Way in Sonora, California.

1.1 Project Location and Description

The Site is situated in Tuolumne County and consists of the closed Caltrans Sonora Maintenance Station. Former structures at the Site included a truck shed, blacksmith shop, and office/bunkhouse, each of which were demolished in June 2009. The approximate project location is depicted on the Vicinity Map, Figure 1, and Site Plan, Figure 2.

1.2 General Objectives

The purpose of the scope of work outlined in TO 13 was to collect additional groundwater samples from the Site and surrounding area to evaluate the vertical extent of groundwater impacts in the source area and to determine the lateral extent of groundwater impacts in the downgradient direction (south-southeast) from the Site. This additional groundwater sampling was directed by the Central Valley Regional Water Quality Control Board (CVRWQCB) in their letter dated September 20, 2013.

2.0 BACKGROUND

2.1 Previous Investigations

Four underground storage tanks (USTs) were removed from the Site in July 1986. Between 1987 and 1991, fourteen onsite soil borings and eight groundwater monitoring wells (MW-1 through MW-8) were advanced to evaluate the extent of subsurface soil and groundwater impacts beneath and adjacent to the Site. Groundwater has been encountered at depths between 10.5 and 18 feet, and groundwater flow is consistently toward the south and southeast. Wells MW-1 and MW-3 through MW-7 were destroyed in 1993 due to the construction of the Greenley Road extension. In April 2002 Geocon abandoned wells MW-2 and MW-8 by pressure grouting in accordance with Tuolumne County Department of Environmental Health (TCDEH) permit requirements.

Based on the presence of fuel oxygenate compounds (FOCs) in groundwater at the Site, the CVRWQCB required the installation of additional groundwater monitoring wells. Seven groundwater monitoring wells (MW-9 through MW-15) were installed at onsite and offsite locations in 2002 and 2003. We have not been able to locate well MW-14 since May 2005. Attempts to locate well MW-14 have been unsuccessful as it appears to be located beneath a retaining wall.

In January 2008, ten hollow-stem auger (HSA) borings were drilled for the collection of grab groundwater samples. These borings were performed to evaluate the potential presence of petroleum hydrocarbons in groundwater along Greenley Road, Sanguinetti Road and Old Wards Ferry Road downgradient of well MW-15. Based on the results of the January 2008 investigation, we installed groundwater monitoring wells MW-16 and MW-17 in May 2008. We reinitiated quarterly groundwater monitoring activities at the Site in March 2007.

Road construction activities were performed adjacent to the Site in June and July 2010. We recommended that wells MW-15 and MW-16 be destroyed due to their locations in the middle of the expanded intersection of Greenley Road and Sanguinetti Road and in the landscaped area between the new Old Wards Ferry Road alignment and the former Old Wards Ferry Road alignment. We further recommended that two replacement wells be installed downgradient of well MW-15 along the new Old Wards Ferry road alignment. In correspondence dated January 7, 2011, the CVRWQCB approved our recommendation to install new wells; however, they requested that one well be installed near the southwest corner of the intersection of Greenley Road and Sanguinetti Road, and that the second well be installed near the northeast corner of Greenley Road and Sanguinetti Road.

In correspondence dated December 13, 2011, the CVRWQCB requested the addition of naphthalene and 1,2-dicholorethane (1,2-DCA) to the groundwater monitoring program.

In December 2011, we destroyed monitoring wells MW-15 and MW-16 in accordance with TCDEH permit requirements. Each well was destroyed by pressure grouting the casing and boring annulus to the ground surface using a portable pump. We also advanced two HSA borings to facilitate the installation of a 2-inch-diameter groundwater monitoring well (MW-18). Existing wells are shown on Figure 2.

We attempted to install well MW-19 at the northeast corner of Greenley Road and Old Wards Ferry Road but then aborted the installation after an unidentified storm drain pipe was punctured at a depth of approximately 2 feet. Well MW-19 and an additional well (MW-20) were installed by AMEC as part of a Caltrans pilot test program for sulfate injection (Figure 2). Wells MW-19 and MW-20 have been added to the groundwater monitoring program for the Site. In correspondence dated January 27, 2012, the CVRWQCB requested data for sodium, bromide, magnesium, sulfate and total dissolved solids (TDS) from wells MW-10 and MW-20. Based on March 2012 sample results, in correspondence dated July 9, 2012, the CVRWQCB stated that if the results in the compliance well (MW-10) exceed 20% of the background well (MW-20), then a contingency plan must go into effect. The contingency plan consists of pumping the impacted well until concentrations return to within 20% of background levels.

In accordance with the request of Caltrans, we also submitted plans and specifications to construct a remediation system at the Site. The project will include above- and below-ground plumbing of six existing air sparge (AS) and soil vapor extraction (SVE) wells to skid- or trailed-mounted AS and SVE systems. Caltrans is currently procuring funding for installation of the proposed SVE/AS system.

Based on the petroleum hydrocarbon concentrations detected in groundwater samples collected from wells MW-18 and MW-19, two additional wells were installed downgradient of the Site. In October 2012, we installed well MW-21 east of the intersection of Old Wards Ferry Road and Sanguinetti Road, and installed well MW-22 south-southeast of the intersection of Old Wards Ferry Road and Sanguinetti Road.

2.2 Work In Progress

In a directive letter dated September 20, 2013, the CVRWQCB requested the completion of the following tasks:

1. Provide a schedule for the construction, startup and monitoring of the AS/SVE remediation system.
2. Collect groundwater samples in order to evaluate the downgradient extent and potential vertical migration of groundwater impacts.

3. Provide a table with current well construction details and a protocol for collecting samples from submerged screens.
4. Analyze groundwater samples from wells EW-1, MW-2, MW-9, MW-10, MW-11 and MW-20 for total lead.
5. Collect and analyze upstream and downstream surface water samples from the creek located approximately 125 feet east of the Site.
6. Collect soil and vapor samples adjacent to well MW-10.

Task 1 will be completed after Caltrans procures funding for installation of the proposed system. Task 2 is the basis of this Report. Tasks 3 through 5 were completed in December 2013. Well construction details for each of the existing site-related wells are in Table 1. Groundwater samples from wells MW-9, MW-10, MW-11, and MW-20 were analyzed for lead in December 2013 and March and June 2014. Lead analysis is now included in the monitoring program. Well MW-2 was destroyed, and well EW-1 was partially buried and appeared to be damaged; therefore, these wells could not be sampled or analyzed for lead. Upstream and downstream samples of the creek located downgradient of the Site were collected from the east and west sides of Old Wards Ferry Road, respectively. Results of the lead analysis and creek sampling were presented in our *Groundwater Monitoring Report – December 2013*, dated February 11, 2014. Task 6 will be completed once remediation activities are complete.

Geosyntec is currently performing a study for Caltrans evaluating various sampling techniques, including low-flow purging, snap samplers, and passive diffusion bag samplers. The third and final sampling event for this study was performed in June 2014. Geosyntec is currently preparing a report discussing the results of their study.

3.0 INVESTIGATIVE METHODS

Outlined below is a summary of the scope of services performed under TO No. 13:

3.1 Pre-field Activities

- Utilized the project-specific health and safety plan (HSP) to provide guidelines on the use of personal protective equipment and the health and safety procedures implemented during the proposed field activities.
- Marked the proposed boring locations with white paint as required by law and provided a minimum of 48-hours notice to the local public utilities via Underground Service Alert (Ticket Nos. 216292 and 216323). We also subcontracted with Cruz Brothers Locators, Inc., a private utility locating company located in Santa Cruz, California, to further delineate subsurface public utilities and conduits in proximity to the proposed boring locations.
- Obtained temporary boring permit EH2014-00212 and monitoring well installation permit EH2014-00171 from TCDEH and paid requisite fees. Copies of the permits are in Appendix A.
- Obtained encroachment permit No. 0641 from the City of Sonora and paid requisite fees. A copy of the permit is in Appendix A.
- Retained the services of Statewide Traffic Safety and Signs to develop traffic control plans for the encroachment permit and to provide lane closure services for the drilling activities along Old Wards Ferry Road.

- Retained the services of Cascade Drilling (Cascade), a Caltrans-approved C57-licensed drilling company, to advance the soil borings.
- Retained the services of Advanced Technology Laboratories (ATL), a Caltrans-approved and California-certified analytical laboratory located in Signal Hill, California, to perform chemical analysis of groundwater samples.

3.2 Field Activities

To evaluate the vertical extent of groundwater impacts beneath the Site, we advanced sonic boring GS9 (Photos 1 through 4), installed monitoring well MW-23 within boring GS9 (Photo 5), and collected groundwater samples from MW-23 and existing air-sparge well AS-2. To assess the lateral extent of groundwater impacts, we advanced sonic boring GS10 downgradient of the Site for collection of a grab groundwater sample (Photos 6 through 8). The locations of the two borings are shown on Figure 2. A summary of the methods and techniques used to advance the borings, construct the well and collect the samples is below.

3.2.1 Sonic Boring GS9

From June 9 through 12, 2014, Cascade advanced onsite sonic soil boring GS9 utilizing a Geoprobe 8140 LS drilling rig (Photo 1). Sonic drilling works by using high frequency resonant energy to advance a core barrel and casing to the desired depth. For soil boring GS9, Cascade used a 4.5-inch core barrel to drill the boring, followed by 6-inch-diameter steel casing.

Boring GS9 was originally planned as a temporary boring per our *Additional Site Investigation Workplan* dated March 7, 2014. To minimize the potential for cross-contamination of the groundwater, we attempted to seal off the upper 35 feet of the boring using a bentonite plug and 6-inch-diameter sonic casings. After drilling to 35 feet, Cascade withdrew the core barrel from the boring and raised the casing to a depth of 29 feet, exposing the bottom 6 feet of the boring. Cascade then filled the boring with approximately 2.5 feet of bentonite chips, reset the casing to a depth of 35 feet and allowed the bentonite to hydrate for 30 minutes. Once the bentonite chips were hydrated, Cascade used a dedicated disposable bailer to remove the groundwater inside the casing. Bentonite chips were also used to soak up residual water inside the casing. Cascade then resumed drilling with the core barrel, leaving the plug and casing in place to prevent cross-contamination. However, upon drilling 6 inches past the plug, groundwater immediately rose to a depth of approximately 18 feet, which was the same depth of water measured in the casing prior to installation of the plug. Since the bentonite seal did not appear to work, in addition to the significant effort it would take to attempt to recollect an additional grab-groundwater sample in this area, we recommended that the boring be completed as a monitoring well. With approval from the Caltrans Project Manager, we continued drilling the boring with the goal of constructing a monitoring well. On July 12, 2014, we reached the total depth of the boring (47 feet).

We collected continuous soil and rock samples from the boring for logging purposes. Cascade placed the samples into clear plastic soil core bags. Select soil sections were placed into plastic Ziploc® bags at approximate 5-foot intervals or less if changes in the cuttings were observed (different color, grain size, evidence of staining, etc.). We logged the boring under the direction of a California Professional Geologist (PG) utilizing the Unified Soil Classification System (USCS). We field-screened the bagged soil samples with a photo-ionization detector (PID) to assess for possible qualitative indicators of volatile organic compounds (VOCs) and noted the PID readings on the field boring logs (Appendix B).

Quality Assurance/Quality Control (QA/QC) procedures provided during the field exploration activities included cleansing/rinsing of the drilling equipment and steam cleaning drilling rods and casing prior to and following each boring. Cleansing/rinsing of the sampling equipment was performed by washing the equipment with an Alconox™ solution followed by subsequent tap water and deionized water rinses.

3.2.2 Monitoring Well Construction MW-23

On June 12, 2014, Cascade constructed monitoring well MW-23 using 47 feet of flush-threaded, 2-inch-diameter Schedule 40 polyvinyl chloride (PVC) well casing with a 5-foot-long, 0.020-inch-slotted screen placed from depth of 42 to 47 feet. Cascade set a filter pack consisting of #2/12 silica sand around the screened zone from the bottom of the boring (47 feet) to a depth of 40 feet. Bentonite chips were placed above the filter pack from approximately 25 to 40 feet, and neat Portland cement was placed above the bentonite to approximately 1 foot below ground surface. The well was fitted with a 12-inch-diameter traffic-rated EMCO well box set in concrete (Photo 5). The well construction details are summarized in Table 1.

3.2.3 Well Development MW-23

On June 23, 2014, we developed well MW-23. Prior to development, we measured the depth to groundwater using an electric water level indicator relative to the top of casing (TOC). Approximately four well volumes of groundwater (22 gallons) were extracted from the well using a combination of a Teflon bailer and a submersible pump. The well was initially hand bailed to remove silt and sediment introduced during the well construction activities. After the removal of the sediment, the well was pumped to encourage groundwater flow from the formation through the filter pack and into the well. During the well purging activities, the groundwater was monitored for pH, electrical conductivity, temperature and turbidity. This information is presented on a Monitoring Well Development Data sheet (Appendix C).

3.2.4 Groundwater Sampling – MW-23 and AS-2

On June 10, 2014, we collected a groundwater sample from existing air-sparge well AS-2, which is composed of 2-inch-diameter, schedule 80 PVC casing with a 5-foot section of 0.010-inch-slotted screen set from 35 to 40 feet. The groundwater sample from AS-2 allows us to evaluate potential vertical migration of contaminants downgradient of GS9/MW-23 and the former UST locations. On June 24, 2014, we collected a groundwater sample from newly installed MW-23.

We purged approximately five well volumes of groundwater from well AS-2 and two well volumes of groundwater from well MW-23 using dedicated disposable bailers. During well purging activities, we monitored the pH, electrical conductivity and temperature of the extracted water and recorded this information on Monitoring Well Sampling Data sheets (Appendix C).

Following purging, we collected a groundwater sample from the well using a pre-cleaned, dedicated disposable polyethylene bailer. We decanted the sample from the bailer through a low-flow sample release tube into analysis-appropriate, laboratory-provided sample containers which we sealed, labeled, and placed in an ice chest containing ice and transported to ATL under chain-of-custody documentation.

3.2.5 Sonic Boring GS10

On June 10, 2014, Cascade advanced soil boring GS10 to a depth of approximately 20 feet utilizing a Geoprobe 8140 LS sonic drilling rig (Photo 6). Boring GS10 was advanced approximately 120 feet south of groundwater monitoring well MW-22 in order to evaluate the downgradient extent of groundwater impacts. We encountered groundwater at a depth of approximately 18 feet. We collected continuous soil cores into plastic bags (Photo 6 and 7) for the total depth of the boring. Our field geologist logged the boring (Appendix B) using the methods previously described.

3.2.6 Grab Groundwater Sampling GS10

We collected a grab groundwater sample from boring GS10 using a pre-cleaned disposable polyethylene bailer. We decanted the sample from the bailer through a low-flow sample release tube into analysis-appropriate, laboratory-provided sample containers which we sealed, labeled, and placed in an ice chest containing ice and transported to ATL under chain-of-custody documentation.

3.2.7 Backfill/Grouting GS10

Upon completion of the soil and groundwater sampling activities, Cascade backfilled boring GS10 with Portland cement to approximately 0.5 foot below the ground surface. We then capped the boring at the surface with 6 inches of hot patch asphalt in accordance with the City of Sonora's permit requirements (Photo 8).

3.2.8 Investigation Derived Waste Disposal

We placed the purged groundwater, decontamination water and soil cuttings into seven Department of Transportation-approved, 17-H, 55-gallon drums for temporary storage onsite pending offsite disposal. The drums, along with additional drums generated during the Second Quarter – 2014 groundwater monitoring event, were picked up and transported for disposal by Geocon (water) and Allied Veteran Logistical Services, Inc. (soil) on July 25, 2014, and August 7, 2014.

3.3 Laboratory Analyses

Groundwater samples collected from wells MW-23 and AS-2 and the grab groundwater sample collected from boring GS10 were delivered to ATL and analyzed for total petroleum hydrocarbons as gasoline and diesel (TPHg and TPHd) following the United States Environmental Protection Agency (EPA) Test Method 8015B modified, and for BTEX and MTBE following EPA Test Method 8260B. TPHd for the groundwater sample collected from MW-23 was analyzed both with and without silica gel cleanup. Groundwater sample AS-2 and grab groundwater sample GS10 were also analyzed for VOCs following EPA Test Method 8260B. The sample collected from MW-23 was also analyzed for 1,2-DCA and naphthalene.

Groundwater analytical results for MW-23 and AS-2 are summarized in Tables 2 and 3. Grab groundwater analytical results for GS10 are summarized in Table 4.

The laboratory reports and chain-of-custody documentation are in Appendix D. Please note that the laboratory report containing the results for sample MW-23 also includes results for additional quarterly sampling and analysis, the results of which are presented under separate cover.

QA/QC procedures were performed for each method of analysis with specificity for each analyte listed in the test method's QA/QC. The laboratory QA/QC procedures included the following:

- One method blank for every ten samples, batch of samples or type of matrix, whichever was more frequent.
- One sample analyzed in duplicate for every ten samples, batch of samples or type of matrix, whichever was more frequent.
- One spiked sample for every ten samples, batch of samples or type of matrix, whichever was more frequent, with the spike made at ten times the reporting limit or at the analyte level.

We also submitted a trip blank sample with the samples submitted on June 10, 2014. Prior to submitting the soil samples to the laboratory, the chain-of-custody (COC) documentation was reviewed for accuracy and completeness. Reproductions of the COC documentation are in Appendix D.

4.0 FIELD OBSERVATIONS AND INVESTIGATIVE RESULTS

4.1 Soil Conditions

The *Geologic Map of the San Francisco - San Jose Quadrangle*, prepared by the California Division of Mines and Geology, dated 1990, indicates that the Site is underlain by Mesozoic granitic rocks. The ground surface of boring GS9/MW-23 was composed of 3 inches of aggregate base rock which was underlain by fill material consisting of silty sands to a depth of approximately 3 feet. Below the fill material, we encountered residual soil composed of silty gravelly sand to a depth of 7 feet. Beneath the residual soil, we encountered Mesozoic granitic rock of varying degrees of weathering. From 7 to 14.5 feet deep, the granitic rock is completely weathered and excavates as a sandy silt and clayey silt. From 14.5 to 16.5 feet deep, the granitic rock is slightly weathered and excavates as rock fragments. This section of extremely strong granitic rock is likely a boulder-sized piece of the less weathered bedrock parent material. From 16.5 to 21, the granitic rock is once again completely weathered and excavates as sandy clay. Beginning at 21 feet and extending to the total depth of the boring (47 feet), we encountered bedrock which consists of slightly weathered, extremely strong granitic rock (Photo 3). Drilling into the bedrock was very difficult, and between 21 and 39 feet deep, core recovery was typically limited to between 6 to 12 inches per attempt. Better rock core recovery started at a depth of 39 feet when the driller began using a drilling bit equipped with soil catching nubs on the inside of the bit (Photo 4), which effectively ground down the sides of the rock core and prevented the rock core from plugging the drill bit. We encountered groundwater starting at a depth of 23 feet, but groundwater stabilized at a depth of approximately 16 feet, which is similar to depth to water measurements for nearby wells MW-11 and MW-12, both of which are screened at shallower depths.

The uppermost 7 inches of boring GS10 was composed of approximately 5 inches of asphalt and 2 inches of aggregate base rock. Beneath this fill material, we encountered residual soil composed of sandy clay to a depth of approximately 6 feet followed by Mesozoic granitic rock of varying degrees of weathering that extended to the total depth of the boring (20 feet). From 6 to 16 feet, the granitic rock is completely weathered and excavates as a sandy clay and clayey sand. Between 16 and 16.5 feet deep, we encountered slightly weathered rock which excavates as rock fragments. From 16.5 feet to 20 feet, the granitic rock was highly weathered and excavates as clayey sand. Groundwater was encountered at approximately 18 feet.

We encountered evidence of contamination including dark greenish gray staining, strong hydrocarbon odors and elevated PID readings in soil boring GS9/MW-23 at depths between 7 and 21 feet (Photo 2), where we encountered bedrock. Slightly elevated PID readings were observed at depths deeper than 21 feet but are likely a result of impacted groundwater being drawn down during drilling. No evidence of contamination (staining, odor, elevated PID readings) was identified in the soil cuttings of boring GS10.

4.2 Groundwater Analytical Results

A summary of the groundwater analytical results are in Tables 2 through 4. The laboratory reports are in Appendix D. The analytical results are discussed in the following sections.

4.2.1 Groundwater Samples MW-23 and AS-2

TPHg was detected in the groundwater samples from wells MW-23 and AS-2 at concentrations of 260 and 5,600 micrograms per liter (µg/l), respectively. TPHd was detected in the groundwater sample from MW-23 at 300 µg/l when analyzed without silica gel cleanup, and at 140 µg/l when analyzed with silica gel cleanup. TPHd (without silica gel cleanup) was detected in the sample from well AS-2 at a concentration of 670 µg/l.

BTEX compounds were detected in the sample collected from well AS-2 at respective concentrations of 960, 76, 290, and 201 µg/l. Benzene and total xylenes were detected in the sample from well MW-23 at concentrations of 0.54 and 1.4 µg/l, respectively. Toluene and ethylbenzene were not detected at concentrations equal to or exceeding the laboratory reporting limits (RLs) for the sample collected from MW-23. MTBE was detected in the samples from MW-23 and AS-2 at respective concentrations of 19 and 4.3 µg/l.

Naphthalene was detected in the sample from MW-23 at 3.0 µg/l. Naphthalene and 1,2-DCA were detected in the sample collected from AS-2 at respective concentrations of 75 and 5.5 µg/l. Additional VOCs were also detected in the groundwater sample collected from well AS-2 and are summarized in Table 3.

4.2.2 Grab Groundwater Sample GS10

TPHg, TPHd (without silica gel cleanup), BTEX and MTBE were not detected at concentrations at or exceeding the laboratory RLs for the grab groundwater sample collected from boring GS10. Chloroform was detected at 0.66 µg/l for the sample from GS10. Additional VOCs were not detected at concentrations equal to or exceeding the RLs.

4.3 Laboratory Quality Assurance/Quality Control

The field QA/QC implemented during the ASI included the submittal of a trip blank sample. None of the tested analytes were detected at concentrations equal to or exceeding their RLs for the trip blank sample. The results of the trip blank analysis are in Appendix D.

We reviewed the analytical laboratory QA/QC provided with the laboratory report for the groundwater sampling. The laboratory data show that concentrations of the selected analytes were not reported at concentrations equal to or exceeding their respective RLs for each of the method blanks, and that the method blank surrogate recoveries were acceptable. The analytical laboratory QA/QC data showed acceptable recoveries and relative percent differences for the matrix spikes and matrix spike duplicates. Appropriate recoveries were also noted for the laboratory control samples. Based on this limited data review, no qualification of the data is necessary, and the data are considered of sufficient quality for the purposes of this report.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Vertical Extent of Groundwater Contamination

At the direction of the CVRWQCB, we advanced boring GS9/MW-23 to evaluate the vertical extent of the groundwater impacts beneath the Site. Due to problems with temporarily sealing off the upper 35 feet of the boring, we constructed monitoring well MW-23 within boring GS9. We identified field indicators (staining, odors, and elevated PID readings) of petroleum hydrocarbon impacts in soil cuttings from boring GS9/MW-23 between depths of 7 and 21 feet. Granitic bedrock was encountered from a depth of 21 feet to the total depth of the boring (47 feet).

Due to the lack of a confining layer deeper than the first encountered groundwater, the presence of vertically oriented fractures within the granitic rock, and the equilibration of groundwater at depths similar to those for wells with shallower screened intervals (MW-11 and MW-12), it appears that the groundwater in MW-23 and AS-2 is connected to the groundwater observed in shallower screened wells.

TPHg, TPHd, benzene and MTBE were detected in the groundwater samples collected from onsite wells AS-2 and MW-23. Concentrations detected in sample AS-2 were typically an order of magnitude larger than those reported for MW-23. This is consistent with historical analytical groundwater data that has indicated that groundwater plume has migrated from the source area to south and southeast. The presence of contamination in groundwater from deeper screened zones confirms that contamination has migrated down fractures in the bedrock.

Continued monitoring of these wells is needed to establish concentration trends in the deeper zone. We recommend that wells AS-2 and MW-23 be surveyed and incorporated into the groundwater monitoring program for the Site.

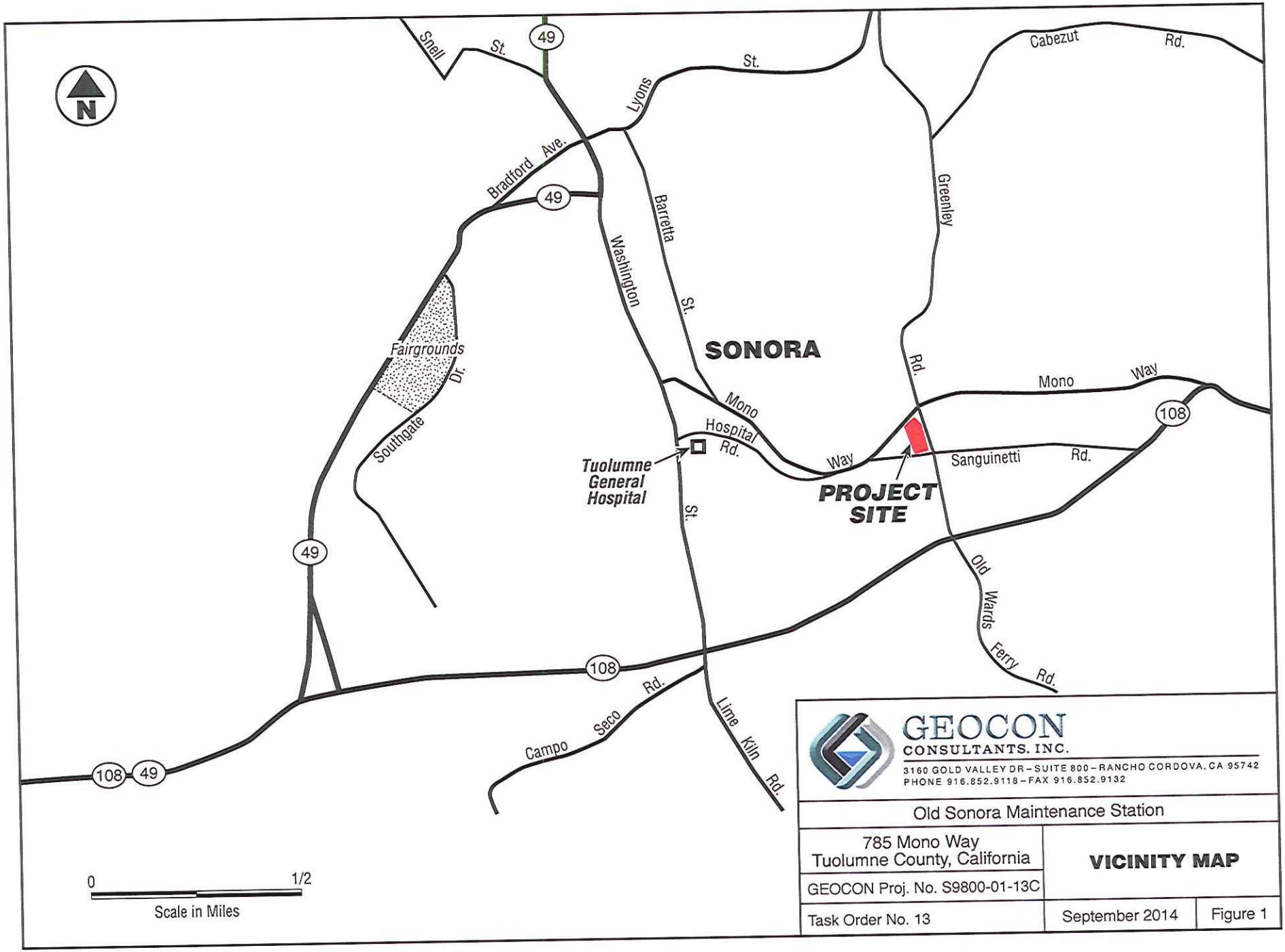
5.2 Downgradient Extent of Groundwater Contamination

At the direction of the CVRWQCB, we installed boring GS10 approximately 120 feet downgradient of well MW-22 to facilitate the collection of a grab groundwater sample farther downgradient from the Site. No evidence of contamination (staining, odor, or elevated PID readings) was identified in the soil cuttings and TPHg, TPHd, BTEX and MTBE were not detected in the grab groundwater sample collected from boring GS10. Therefore, the downgradient extent of groundwater contamination is defined by the sample collected from boring GS10.

6.0 REPORT LIMITATIONS

This report has been prepared exclusively for Caltrans. The information contained herein is only valid as of the date of the report and will require an update to reflect additional information obtained.

This report is not a comprehensive site characterization and should not be construed as such. The findings as presented in this report are predicated on the results of the limited sampling and laboratory testing performed. In addition, the information obtained is not intended to address potential impacts related to sources other than those specified herein. Therefore, the report should be deemed conclusive with respect to only the information obtained. We make no warranty, express or implied, with respect to the content of this report or any subsequent reports, correspondence or consultation. We strived to perform the services summarized herein in accordance with the local standard of care in the geographic region at the time the services were rendered.



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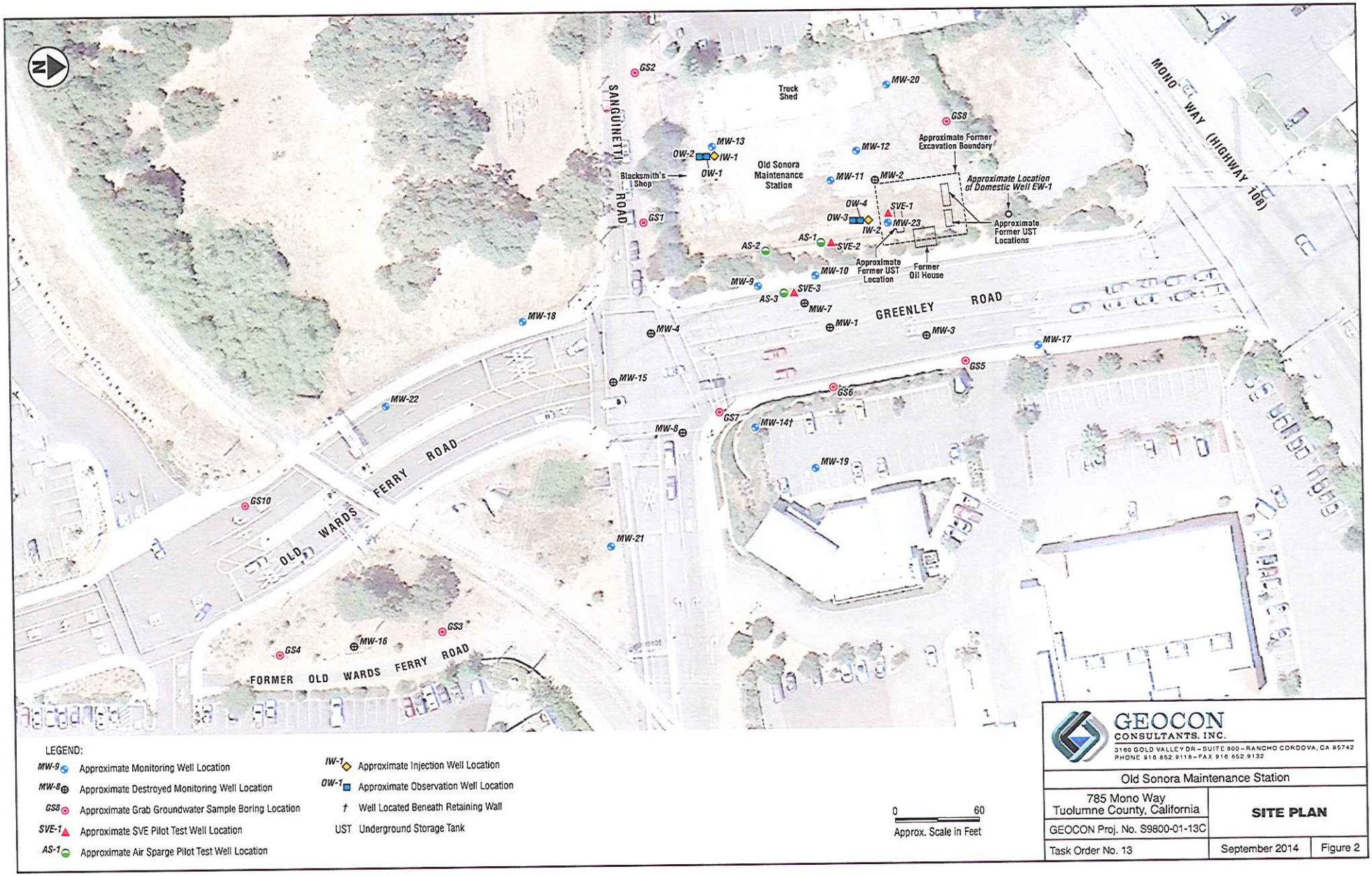
Old Sonora Maintenance Station		
785 Mono Way Tuolumne County, California	**VICINITY MAP**	
GEOCON Proj. No. S9800-01-13C		
Task Order No. 13	September 2014	Figure 1



LEGEND:

- MW-9 Approximate Monitoring Well Location
- MW-8 Approximate Destroyed Monitoring Well Location
- GS8 Approximate Grab Groundwater Sample Boring Location
- SVE-1 Approximate SVE Pilot Test Well Location
- AS-1 Approximate Air Sparge Pilot Test Well Location
- IW-1 Approximate Injection Well Location
- OW-1 Approximate Observation Well Location
- † Well Located Beneath Retaining Wall
- UST Underground Storage Tank

0 60
Approx. Scale in Feet

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Old Sonora Maintenance Station

785 Mono Way
Tuolumne County, California

SITE PLAN

GEOCON Proj. No. S9800-01-13C

Task Order No. 13

September 2014

Figure 2

Photo No. 1 Sonic rig drilling boring GS9/MW-23.

Photo No. 2 Petroleum impacts observed in the soil cuttings of GS9/MW-23. Soil shown is from 16 feet deep.

PHOTOS NO. 1 & 2

GEOCON
CONSULTANTS, INC.
3160 GOLD VALLEY DR – SUITE 800 – RANCHO CORDOVA, CA 95742
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Old Sonora Maintenance Station	
GEOCON Proj. No. S9800-01-13C	785 Mono Way Tuolumne County, California
Task Order No. 13	September 2014

Photo No. 3 Soil core from 43.5 to 44.5 depth. Note the mineralization and oxidation that have formed along fractures within the rock.

Photo No. 4 Drilling bit with soil catching nubs that allowed for better core recovery.

PHOTOS NO. 3 & 4

GEOCON
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Photo No. 5 Setting the well box around well MW-23.

Photo No. 6 Sonic rig transferring a soil core from boring GS10 into a plastic soil core bag.

PHOTOS NO. 5 & 6

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Task Order No. 13	September 2014

Photo No. 7 Soil cores from boring GS10.

Photo No. 8 Boring GS10 after being patched at the surface with hot patch asphalt.

PHOTOS NO. 7 & 8

GEOCON
CONSULTANTS, INC.
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Old Sonora Maintenance Station	
GEOCON Proj. No. S9800-01-13C	785 Mono Way Tuolumne County, California
Task Order No. 13	September 2014

TABLE 1
WELL CONSTRUCTION DETAILS
CALTRANS OLD SONORA MAINTENANCE STATION
SONORA, CALIFORNIA

Well ID	Date Installed	Drilling Subcontractor/ Consultant	Boring Diameter (inches)	Depth of Boring (feet)	Top-of-Casing Elevation (feet msl)	Well Casing Diameter (inches)	Well Casing Material, Blank	Well Casing Material, Screen (slot size, inches)	Screen Interval (feet)	Depth to Top of Screen (feet)	Depth to Bottom of Screen (feet)	Top of Screen Elevation (ft msl)	Bottom of Screen Elevation (feet msl)	Filter Pack Interval (feet)	Filter Pack Size (sand)	Seal Interval (feet)
MW-9	10/23/2002	West Hazmat/International Technology Corporation	8	18	1,978.45	2	Sch. 40 PVC	Sch. 40 PVC (0.01)	8.0 - 18.0	8	18	1970.45	1960.45	6-18	#3	0-6
MW-10	10/23/2002	West Hazmat/International Technology Corporation	8	13	1,980.53	2	Sch. 40 PVC	Sch. 40 PVC (0.01)	6.0 - 13.0	6	13	1974.53	1967.53	4-13	#3	0-4
MW-11	10/22/2002	West Hazmat/International Technology Corporation	8	25	1,990.72	2	Sch. 40 PVC	Sch. 40 PVC (0.01)	15.0 - 25.0	15	25	1975.72	1965.72	13-25	#3	0-13
MW-12	10/22/2002	West Hazmat/International Technology Corporation	8	25	1,991.32	2	Sch. 40 PVC	Sch. 40 PVC (0.01)	15.0 - 25.0	15	25	1976.32	1966.32	13-25	#3	0-13
MW-13	12/9/2003	PC Exploration/Shaw E&I, Inc.	8	35	1,991.29	4	Sch. 40 PVC	Sch. 40 PVC (0.02)	17.0 - 32.0	17	32	1974.29	1959.29	15.5-32.5	#3	0-15.5
MW-17	5/6/2008	Gregg Drilling/Geocon	8	25	1,988.15	2	Sch. 40 PVC	Sch. 40 PVC (0.02)	10.0 - 25.0	10	25	1978.15	1963.15	8-25	#2/12	0-8
MW-18	12/22/2011	Gregg Drilling/Geocon	8	25	1,975.09	2	Sch. 40 PVC	Sch. 40 PVC (0.02)	9.5 - 24.5	9.5	24.5	1965.59	1950.59	7.5-25	#2/12	0-7.5
MW-19	1/31/2012	Precision Sampling Inc./Amec	6	35.4	1,990.08	2	Sch. 40 PVC	Sch. 40 PVC (0.01)	16.41 - 31.0	16.41	31	1973.67	1959.08	13-35.4	#2/12	0-13
MW-20	2/6/2012	Precision Sampling Inc./Amec	6	25	1,992.76	2	Sch. 40 PVC	Sch. 40 PVC (0.01)	9.37 - 24.0	9.37	24	1983.39	1968.76	7-25	#2/12	0-7
MW-21	10/30/2012	Gregg Drilling/Geocon	6	25.5	1,973.46	2	Sch. 40 PVC	Sch. 40 PVC (0.02)	10.0 - 25.0	10	25	1963.46	1948.46	9-25	#2/12	0-9
MW-22	10/29/2012	Gregg Drilling/Geocon	6	25.5	1,968.74	2	Sch. 40 PVC	Sch. 40 PVC (0.02)	10.0 - 25.0	10	25	1958.74	1943.74	9-25	#2/12	0-9
MW-23	6/12/2014	Cascade Drilling/Geocon	6	47	NA	2	Sch. 40 PVC	Sch. 40 PVC (0.02)	42.0 - 47.0	42	47	NA	NA	40-47	#2/12	0-40

Notes: msl = Mean sea level
PVC = Polyvinyl chloride
Sch. = Schedule
NA = Not Available

TABLE 2
SUMMARY OF GROUNDWATER ELEVATION AND ANALYTICAL DATA
FORMER SONORA MAINTENANCE STATION
TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TOP OF CASING ELEVATION (MSL)	DEPTH TO GROUNDWATER (feet)	GROUNDWATER ELEVATION (MSL) (feet)	TPHg (µg/l)	TPHd (µg/l)	BENZENE (µg/l)	TOLUENE (µg/l)	ETHYL-BENZENE (µg/l)	TOTAL XYLENES (µg/l)	LEAD (µg/l)
MW-9	10/31/2002	1,978.45	10.83	1,967.62	51,000	13,000	2,400	9,200	3,700	19,000	---
MW-9	12/30/2003	1,978.45	9.41	1,969.04	55,000	23,000	710	6,700	2,400	10,000	---
MW-9	4/1/2004	1,978.45	9.13	1,969.32	46,000	18,000	490	4,700	2,100	6,300	---
MW-9	5/25/2004	1,978.45	9.96	1,968.49	36,800	19,900	1,080	3,640	2,420	6,300	---
MW-9	5/17/2005	1,978.45	6.94	1,971.51	23,000	<50	100	1,900	1,300	4,500	---
MW-9	3/26/2007	1,978.45	7.52	1,970.93	13,000	2,900	56	220	680	2,260	---
MW-9	6/4/2007	1,978.45	7.96	1,970.49	16,000	3,100	350	340	880	2,680	---
MW-9	9/11/2007	1,978.45	9.20	1,969.25	32,000	4,800	580	460	1,300	3,900	---
MW-9	12/3/2007	1,978.45	9.74	1,968.71	39,000	4,700	640	690	1,900	6,900	---
MW-9	4/8/2008	1,978.45	7.74	1,970.71	23,000	4,600	170	80	79	310	---
MW-9	5/7/2008	1,978.41	8.07	1,970.34	20,000	3,400	420	470	760	2,000	---
MW-9	8/6/2008	1,978.41	9.32	1,969.09	30,000	640	600	600	1,800	3,500	---
MW-9	12/2/2008	1,978.41	9.54	1,968.87	40,000	3,100	630	790	2,200	7,700	---
MW-9	2/18/2009	1,978.41	6.41	1,972.00	18,000	2,000	53	260	680	2,100	---
MW-9	5/12/2009	1,978.41	7.43	1,970.98	12,000	2,600	150	65	380	1,070	---
MW-9	1/11/2010	1,978.41	9.11	1,969.30	22,000	5,400	120	350	870	2,190	---
MW-9	3/15/2010	1,978.41	6.46	1,971.95	16,000	1,800	32	82	470	1,450	---
MW-9	6/17/2010	1,978.41	7.37	1,971.04	15,000	2,300	120	110	410	1,080	---
MW-9	9/14/2010	1,978.41	8.69	1,969.72	23,000	2,400	260	190	1,100	3,640	---
MW-9	12/8/2010	1,978.41	7.79	1,970.62	21,000	2,700	60	240	1,200	3,900	---
MW-9	2/16/2011	1,978.41	7.31	1,971.10	19,000	2,700	58	100	490	1,300	---
MW-9	4/21/2011	1,978.41	5.59	1,972.82	8,500	2,700	29	20	240	660	---
MW-9	8/16/2011	1,978.41	7.73	1,970.68	13,000	2,400	290	26	370	690	---
MW-9	12/12/2011	1,978.41	8.75	1,969.66	17,000	3,300	270	92	910	1,970	---
MW-9	3/27/2012	1,978.41	8.21	1,970.20	16,000	2,900	78	280	830	2,100	---
MW-9	6/27/2012	1,978.41	8.39	1,970.02	24,000	2,100	240	100	940	2,260	---
MW-9	11/19/2012	1,978.41	9.34	1,969.07	19,000	3,900	240	140	1,100	2,170	---
MW-9	5/23/2013	1,978.41	8.54	1,969.87	20,000	2,700	250	51	810	1,140	---
MW-9[1]	12/10/2013	1,978.41	10.46	1,967.95	12,000	2,000 [2]	290	49	610	600	<5
MW-9[1]	3/18/2014	1,978.41	9.70	1,968.71	14,000	1,200 [3]	49	100	530	920	<5
MW-10	10/31/2002	1,980.53	9.07	1,971.46	140,000	54,000	4,500	11,000	1,600	10,000	---
MW-10	12/30/2003	1,980.53	8.24	1,972.29	130,000	7,800	2,800	12,000	1,600	9,100	---
MW-10	4/1/2004	1,980.53	7.60	1,972.93	73,000	23,000	2,900	11,000	1,600	9,400	---
MW-10	5/25/2004	1,980.53	8.29	1,972.24	65,100	31,600	3,940	13,200	1,910	10,900	---
MW-10	5/17/2005	1,980.53	5.80	1,974.73	33,000	<50	750	2,800	840	4,500	---
MW-10	3/26/2007	1,980.53	6.12	1,974.41	51,000	3,700	1,900	5,900	1,300	7,400	---
MW-10	6/4/2007	1,980.53	6.37	1,974.16	48,000	5,000	2,500	7,400	1,900	9,800	---

TABLE 2
SUMMARY OF GROUNDWATER ELEVATION AND ANALYTICAL DATA
FORMER SONORA MAINTENANCE STATION
TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TOP OF CASING ELEVATION (MSL)	DEPTH TO GROUNDWATER (feet)	GROUNDWATER ELEVATION (MSL) (feet)	TPHg (µg/l)	TPHd (µg/l)	BENZENE (µg/l)	TOLUENE (µg/l)	ETHYL-BENZENE (µg/l)	TOTAL XYLENES (µg/l)	LEAD (µg/l)
MW-10	9/11/2007	1,980.53	7.73	1,972.80	44,000	6,800	1,400	2,500	1,500	8,400	---
MW-10	12/3/2007	1,980.53	8.26	1,972.27	52,000	6,200	3,100	4,900	1,500	9,500	---
MW-10	4/8/2008	1,980.53	6.19	1,974.34	62,000	11,000	3,000	5,300	2,300	11,100	---
MW-10	5/7/2008	1,980.53	6.54	1,973.99	62,000	8,100	580	1,300	520	2,610	---
MW-10	8/6/2008	1,980.53	7.77	1,972.76	51,000	1,800	2,800	5,300	2,300	10,300	---
MW-10	12/2/2008	1,980.53	8.04	1,972.49	58,000	3,900	2,300	4,300	2,200	11,600	---
MW-10	2/18/2009	1,980.53	6.21	1,974.32	63,000	2,800	3,300	7,500	2,500	12,500	---
MW-10	5/12/2009	1,980.53	6.14	1,974.39	61,000	3,600	1,800	4,600	2,200	10,400	---
MW-10	1/11/2010	1,980.53	7.72	1,972.81	58,000	930	1,700	3,900	3,000	14,900	---
MW-10	3/15/2010	1,980.53	5.56	1,974.97	66,000	2,800	1,800	7,200	3,300	15,100	---
MW-10	6/17/2010	1,980.53	6.00	1,974.53	63,000	3,300	1,900	4,800	2,800	12,500	---
MW-10	9/14/2010	1,980.53	7.26	1,973.27	47,000	3,100	1,700	4,300	3,000	13,300	---
MW-10	12/8/2010	1,980.53	6.65	1,973.88	71,000	2,800	1,500	5,300	3,500	14,900	---
MW-10	2/16/2011	1,980.53	6.00	1,974.53	67,000	3,100	1,500	4,400	2,900	10,100	---
MW-10	4/21/2011	1,980.53	4.33	1,976.20	42,000	3,500	930	3,400	2,800	11,700	---
MW-10	8/16/2011	1,980.53	6.26	1,974.27	64,000	3,100	1,800	3,400	2,600	9,500	---
MW-10	12/12/2011	1,980.53	7.36	1,973.17	80,000	4,600	850	1,400	1,400	5,600	---
MW-10	3/27/2012	1,980.53	7.01	1,973.52	62,000	3,800	2,800	8,600	2,900	12,400	---
MW-10	6/27/2012	1,980.53	6.95	1,973.58	68,000	2,200	2,200	3,200	2,400	9,800	---
MW-10	11/19/2012	1,980.53	8.26	1,972.27	35,000	3,500	2,700	5,000	2,100	9,000	---
MW-10	5/23/2013	1,980.53	7.05	1,973.48	73,000	11,000	2,300	5,100	2,400	9,400	---
MW-10[1]	12/10/2013	1,980.53	9.09	1,971.44	50,000	3,000 [2]	2,100	2,800	1,500	5,400	8.7
MW-10[1]	3/18/2014	1,980.53	8.34	1,972.19	63,000	2,300 [3]	2,800	6,100	1,800	7,900	15
MW-11	10/31/2002	1,990.70	18.88	1,971.82	2,200	1,000	5.1	3.8	3.6	9.4	---
MW-11	12/30/2003	1,990.70	18.19	1,972.51	270	<50	1.6	<0.5	<0.5	<0.5	---
MW-11	4/1/2004	1,990.70	17.52	1,973.18	120	<50	<0.5	0.7	<0.5	0.9	---
MW-11	5/25/2004	1,990.70	18.21	1,972.49	95.9	<50	<0.5	<0.5	<0.5	<0.5	---
MW-11	5/17/2005	1,990.70	15.72	1,974.98	300	<50	<2.0	<2.0	<2.0	<2.0	---
MW-11	3/26/2007	1,990.70	16.15	1,974.55	85	<50	<0.5	<0.5	<0.5	<1.0	---
MW-11	6/4/2007	1,990.70	16.48	1,974.22	76	<50	<0.5	<0.5	<0.5	<1.0	---
MW-11	9/11/2007	1,990.70	17.76	1,972.94	71	<50	<0.5	<0.5	<0.5	<1.0	---
MW-11	12/3/2007	1,990.70	18.24	1,972.46	200	<50	<0.5	<0.5	<0.5	<1.0	---
MW-11	4/8/2008	1,990.70	16.26	1,974.44	58	<50	<0.5	<0.5	<0.5	<1.0	---
MW-11	5/7/2008	1,990.72	16.64	1,974.08	63	73	<0.5	<0.5	<0.5	<1.0	---
MW-11	8/6/2008	1,990.72	17.77	1,972.95	100	<50	<0.5	<0.5	<0.5	<1.0	---
MW-11	12/2/2008	1,990.72	17.98	1,972.74	75	56	<0.5	<0.5	<0.5	<1.0	---
MW-11	2/18/2009	1,990.72	16.09	1,974.63	68	<50	<0.5	<0.5	<0.5	<1.0	---

TABLE 2
SUMMARY OF GROUNDWATER ELEVATION AND ANALYTICAL DATA
FORMER SONORA MAINTENANCE STATION
TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TOP OF CASING ELEVATION (MSL)	DEPTH TO GROUNDWATER (feet)	GROUNDWATER ELEVATION (MSL) (feet)	TPHg (µg/l)	TPHd (µg/l)	BENZENE (µg/l)	TOLUENE (µg/l)	ETHYL-BENZENE (µg/l)	TOTAL XYLENES (µg/l)	LEAD (µg/l)
MW-11	5/12/2009	1,990.72	16.07	1,974.65	55	<50	<0.5	<0.5	<0.5	<1.0	---
MW-11	1/12/2010	1,990.72	17.64	1,973.08	<50	80	<0.5	<0.5	<0.5	<1.0	---
MW-11	3/16/2010	1,990.72	15.45	1,975.27	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-11	6/17/2010	1,990.72	15.97	1,974.75	140	<50	<0.5	<0.5	<0.5	<1.0	---
MW-11	9/14/2010	1,990.72	17.28	1,973.44	120	<50	<0.5	<0.5	<0.5	<1.0	---
MW-11	12/8/2010	1,990.72	16.51	1,974.21	140	<50	<0.5	<0.5	<0.5	<1.0	---
MW-11	2/16/2011	1,990.72	15.93	1,974.79	160	<50	<0.5	<0.5	<0.5	<1.0	---
MW-11	4/21/2011	1,990.72	14.28	1,976.44	150	<50	<0.5	<0.5	<0.5	<1.0	---
MW-11	8/16/2011	1,990.72	16.27	1,974.45	88	<50	<0.5	<0.5	<0.5	<1.0	---
MW-11	12/12/2011	1,990.72	17.34	1,973.38	<50	60	<0.5	<0.5	<0.5	<1.0	---
MW-11	3/27/2012	1,990.72	16.90	1,973.82	50	50	<0.5	<0.5	<0.5	<1.0	---
MW-11	6/27/2012	1,990.72	16.94	1,973.78	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-11	11/19/2012	1,990.72	18.24	1,972.48	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-11	5/23/2013	1,990.72	17.00	1,973.72	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-11[1]	12/9/2013	1,990.72	19.01	1,971.71	<50	<50	<0.5	<0.5	<0.5	<1.0	<5
MW-11[1]	3/18/2014	1,990.72	18.23	1,972.49	<50	<50	<0.5	<0.5	<0.5	<1.0	<5
MW-12	10/31/2002	1,991.35	16.93	1,974.42	100	<50	<0.5	<0.5	<0.5	<0.5	---
MW-12	12/30/2003	1,991.35	16.24	1,975.11	60	<50	<0.5	<0.5	<0.5	<0.5	---
MW-12	4/1/2004	1,991.35	15.70	1,975.65	93	<50	<0.5	<0.5	<0.5	0.6	---
MW-12	5/25/2004	1,991.35	16.37	1,974.98	80.2	<50	<0.5	2.1	<0.5	3.0	---
MW-12	5/17/2005	1,991.35	14.04	1,977.31	100	<50	<2.0	<2.0	<2.0	<2.0	---
MW-12	3/26/2007	1,991.35	14.55	1,976.80	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-12	6/4/2007	1,991.35	14.84	1,976.51	71	<50	<0.5	<0.5	<0.5	<1.0	---
MW-12	9/11/2007	1,991.35	16.09	1,975.26	61	<50	<0.5	<0.5	<0.5	<1.0	---
MW-12	12/3/2007	1,991.35	16.52	1,974.83	220	<50	<0.5	<0.5	<0.5	<1.0	---
MW-12	4/8/2008	1,991.35	14.57	1,976.78	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-12	5/7/2008	1,991.32	15.02	1,976.30	57	68	<0.5	<0.5	<0.5	<1.0	---
MW-12	8/6/2008	1,991.32	15.97	1,975.35	150	<50	<0.5	<0.5	<0.5	<1.0	---
MW-12	12/2/2008	1,991.32	16.10	1,975.22	<50	55	<0.5	<0.5	<0.5	<1.0	---
MW-12	2/18/2009	1,991.32	13.98	1,977.34	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-12	5/12/2009	1,991.32	14.28	1,977.04	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-12	1/12/2010	1,991.32	15.81	1,975.51	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-12	3/16/2010	1,991.32	13.71	1,977.61	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-12	6/17/2010	1,991.32	14.27	1,977.05	170	<50	<0.5	<0.5	<0.5	<1.0	---
MW-12	9/14/2010	1,991.32	15.29	1,976.03	110	<50	<0.5	<0.5	<0.5	<1.0	---
MW-12	12/8/2010	1,991.32	14.76	1,976.56	150	<50	<0.5	<0.5	<0.5	<1.0	---
MW-12	2/16/2011	1,991.32	14.25	1,977.07	<50	<50	<0.5	<0.5	<0.5	<1.0	---

TABLE 2
SUMMARY OF GROUNDWATER ELEVATION AND ANALYTICAL DATA
FORMER SONORA MAINTENANCE STATION
TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TOP OF CASING ELEVATION (MSL)	DEPTH TO GROUNDWATER (feet)	GROUNDWATER ELEVATION (MSL) (feet)	TPHg (µg/l)	TPHd (µg/l)	BENZENE (µg/l)	TOLUENE (µg/l)	ETHYL-BENZENE (µg/l)	TOTAL XYLENES (µg/l)	LEAD (µg/l)
MW-12	4/21/2011	1,991.32	12.81	1,978.51	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-12	8/16/2011	1,991.32	14.52	1,976.80	69	<50	<0.5	<0.5	<0.5	<1.0	---
MW-12	12/12/2011	1,991.32	15.65	1,975.67	<50	50	<0.5	<0.5	<0.5	<1.0	---
MW-12	3/27/2012	1,991.32	15.02	1,976.30	<50	60	<0.5	<0.5	<0.5	<1.0	---
MW-12	6/27/2012	1,991.32	15.14	1,976.18	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-12	11/19/2012	1,991.32	16.33	1,974.99	<50	<52	<0.5	<0.5	<0.5	<1.0	---
MW-12	5/23/2013	1,991.32	15.11	1,976.21	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-12[1]	12/9/2013	1,991.32	17.10	1,974.22	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-12[1]	3/18/2014	1,991.32	16.22	1,975.10	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-13	12/30/2003	1,991.29	22.39	1,968.90	1,200	500	9.1	1.3	2.7	17	---
MW-13	4/1/2004	1,991.29	21.70	1,969.59	1,900	830	<0.5	1.9	46	11	---
MW-13	5/25/2004	1,991.29	22.48	1,968.81	2,590	1,250	9.1	2.7	77.1	34.3	---
MW-13	5/17/2005	1,991.29	19.96	1,971.33	4,600	<50	<20	<20	120	130	---
MW-13	3/26/2007	1,991.29	20.34	1,970.95	2,700	530	1.6	0.55	52	12.4	---
MW-13	6/4/2007	1,991.29	20.79	1,970.50	3,700	640	2.4	<0.5	65	21	---
MW-13	9/11/2007	1,991.29	22.02	1,969.27	4,200	1,400	2.0	<0.5	63	19.9	---
MW-13	12/3/2007	1,991.29	22.43	1,968.86	3,000	630	0.78	<0.5	45	12.6	---
MW-13	4/8/2008	1,991.29	20.55	1,970.74	4,500	840	6.4	<0.5	55	27	---
MW-13	5/7/2008	1,991.29	20.95	1,970.34	5,800	1,000	7.4	0.61	58	34.2	---
MW-13	8/6/2008	1,991.29	22.06	1,969.23	5,500	270	2.1	<0.5	51	22.5	---
MW-13	12/2/2008	1,991.29	22.18	1,969.11	3,500	1,100	0.61	<0.5	47	9.8	---
MW-13	2/18/2009	1,991.29	19.94	1,971.35	1,600	370	1.9	1.3	22	4.8	---
MW-13	5/12/2009	1,991.29	20.25	1,971.04	5,300	1,300	1.1	<0.5	42	22.3	---
MW-13	1/12/2010	1,991.29	21.82	1,969.47	3,900	<50	1.1	<0.5	50	9.6	---
MW-13	3/16/2010	1,991.29	19.44	1,971.85	3,200	350	0.79	<0.5	34	5.5	---
MW-13	6/17/2010	1,991.29	20.21	1,971.08	5,800	960	2.8	<0.5	35	17.8	---
MW-13	9/14/2010	1,991.29	21.55	1,969.74	5,600	1,100	1.1	<0.5	39	9.9	---
MW-13	12/8/2010	1,991.29	20.74	1,970.55	3,000	240	<0.5	<0.5	34	6.3	---
MW-13	2/16/2011	1,991.29	20.16	1,971.13	5,300	1,400	1.8	<0.5	54	39.8	---
MW-13	4/21/2011	1,991.29	18.48	1,972.81	5,900	1,600	1.8	<0.5	67	49	---
MW-13	8/16/2011	1,991.29	20.66	1,970.63	5,200	1,100	1.4	<0.5	29	11.1	---
MW-13	12/12/2011	1,991.29	21.57	1,969.72	4,900	580	0.56	<0.5	29	7.8	---
MW-13	3/27/2012	1,991.29	21.02	1,970.27	490	130	<0.5	<0.5	1.8	<1.0	---
MW-13	6/27/2012	1,991.29	21.18	1,970.11	2,700	740	<0.5	<0.5	1.3	<1.0	---
MW-13	11/19/2012	1,991.29	22.32	1,968.97	2,400	430	<0.5	<0.5	17	2.13	---
MW-13	5/23/2013	1,991.29	21.23	1,970.06	2,600	<50	<0.5	<0.5	12	2.47	---
MW-13[1]	12/10/2013	1,991.29	23.00	1,968.29	500	130 [2]	<0.5	<0.5	1.8	<1.0	---

TABLE 2
SUMMARY OF GROUNDWATER ELEVATION AND ANALYTICAL DATA
FORMER SONORA MAINTENANCE STATION
TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TOP OF CASING ELEVATION (MSL)	DEPTH TO GROUNDWATER (feet)	GROUNDWATER ELEVATION (MSL) (feet)	TPHg (µg/l)	TPHd (µg/l)	BENZENE (µg/l)	TOLUENE (µg/l)	ETHYL-BENZENE (µg/l)	TOTAL XYLENES (µg/l)	LEAD (µg/l)
MW-13[1]	3/18/2014	1,991.29	21.26	1,970.03	340	97 [2]	<0.5	<0.5	0.77	<1.0	---
MW-14	12/30/2003	1,977.84	9.81	1,968.03	<50	<50	<0.5	<0.5	<0.5	<0.5	---
MW-14	4/1/2004	1,977.84	9.20	1,968.64	<50	<50	<0.5	<0.5	<0.5	<0.5	---
MW-14	5/25/2004	1,977.84	9.99	1,967.85	54.7	<50	<0.5	<0.5	<0.5	<0.5	---
MW-14	5/17/2005	1,977.84	Not accessible since 2005		---	---	---	---	---	---	---
MW-15	12/30/2003	1,974.69	7.59	1,967.10	63	260	<0.5	<0.5	<0.5	<0.5	---
MW-15	4/1/2004	1,974.69	7.26	1,967.43	140	<50	<0.5	<0.5	<0.5	<0.5	---
MW-15	5/25/2004	1,974.69	8.03	1,966.66	96.8	<50	<0.5	<0.5	<0.5	<0.5	---
MW-15	5/17/2005	1,974.69	5.44	1,969.25	500	<50	<2.0	<2.0	<2.0	<2.0	---
MW-15	3/26/2007	1,974.69	5.78	1,968.91	550	<50	<0.5	<0.5	<0.5	<1.0	---
MW-15	6/4/2007	1,974.69	6.22	1,968.47	500	<50	<0.5	<0.5	<0.5	<1.0	---
MW-15	9/11/2007	1,974.69	7.24	1,967.45	370	56	<0.5	<0.5	<0.5	<1.0	---
MW-15	12/3/2007	1,974.69	7.82	1,966.87	470	<50	<0.5	<0.5	<0.5	<1.0	---
MW-15	4/8/2008	1,974.69	5.96	1,968.73	210	74	<0.5	<0.5	<0.5	<1.0	---
MW-15	5/7/2008	1,974.70	6.30	1,968.40	240	91	<0.5	<0.5	<0.5	<1.0	---
MW-15	8/6/2008	1,974.70	7.39	1,967.31	210	<50	<0.5	<0.5	<0.5	<1.0	---
MW-15	12/2/2008	1,974.70	7.60	1,967.10	170	130	<0.5	<0.5	<0.5	<1.0	---
MW-15	2/18/2009	1,974.70	4.96	1,969.74	120	69	<0.5	<0.5	<0.5	<1.0	---
MW-15	5/12/2009	1,974.70	5.68	1,969.02	240	60	<0.5	<0.5	<0.5	<1.0	---
MW-15	1/12/2010	1,974.70	7.26	1,967.44	160	<50	<0.5	<0.5	<0.5	<1.0	---
MW-15	3/16/2010	1,974.70	4.95	1,969.75	220	<50	<0.5	<0.5	<0.5	<1.0	---
MW-15	6/17/2010	1,974.70	5.74	1,968.96	320	<50	3.7	<0.5	<0.5	<1.0	---
MW-15	9/14/2010	1,974.70	Located in the intersection of Greenley and Sanguinetti – Unable to access.								
MW-15	12/8/2010	1,974.70	Located in the intersection of Greenley and Sanguinetti – Unable to access.								
MW-15	2/16/2011	1,974.70	Located in the intersection of Greenley and Sanguinetti – Unable to access.								
MW-15	4/21/2011	1,974.79	Located in the intersection of Greenley and Sanguinetti – Unable to access.								
MW-15	8/16/2011	1,974.79	Located in the intersection of Greenley and Sanguinetti – Unable to access.								
MW-15	12/12/2011	1,974.79	Located in the intersection of Greenley and Sanguinetti – Unable to access.								
MW-15	12/22/2011		WELL DESTROYED								
MW-16	5/7/2008	1,978.19	19.33	1,958.86	55	250	<0.5	<0.5	<0.5	<1.0	---
MW-16	8/6/2008	1,978.19	21.32	1,956.87	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-16	12/2/2008	1,978.19	21.66	1,956.53	<50	61	<0.5	<0.5	<0.5	<1.0	---
MW-16	2/18/2009	1,978.19	18.69	1,959.50	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-16	5/12/2009	1,978.19	18.70	1,959.49	<50	91	<0.5	<0.5	<0.5	<1.0	---
MW-16	1/12/2010	1,978.19	20.62	1,957.57	<50	<50	<0.5	<0.5	<0.5	<1.0	---

TABLE 2
SUMMARY OF GROUNDWATER ELEVATION AND ANALYTICAL DATA
FORMER SONORA MAINTENANCE STATION
TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TOP OF CASING ELEVATION (MSL)	DEPTH TO GROUNDWATER (feet)	GROUNDWATER ELEVATION (MSL) (feet)	TPHg (µg/l)	TPHd (µg/l)	BENZENE (µg/l)	TOLUENE (µg/l)	ETHYL-BENZENE (µg/l)	TOTAL XYLENES (µg/l)	LEAD (µg/l)
MW-16	3/16/2010	1,978.19	17.66	1,960.53	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-16	6/17/2010	1,978.19	18.31	1,959.88	<50	130	<0.5	<0.5	<0.5	<1.0	---
MW-16	9/14/2010	1,978.19	20.44	1,957.75	<50	76	<0.5	<0.5	<0.5	<1.0	---
MW-16	12/8/2010	1,978.19	19.01	1,959.18	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-16	2/16/2011	1,978.19	17.74	1,960.45	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-16	4/21/2011	1,978.19	15.29	1,962.90	<50	190/<50*	<0.5	<0.5	<0.5	<1.0	---
MW-16	8/16/2011	1,978.19	18.48	1,959.71	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-16	12/12/2011	1,978.19	19.74	1,958.45	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-16	12/22/2011				WELL DESTROYED						
MW-17	5/7/2008	1,988.15	9.23	1,978.92	130	92	<0.5	<0.5	<0.5	<1.0	---
MW-17	8/6/2008	1,988.15	10.19	1,977.96	180	<50	<0.5	<0.5	<0.5	<1.0	---
MW-17	12/2/2008	1,988.15	10.65	1,977.50	140	74	<0.5	<0.5	<0.5	<1.0	---
MW-17	2/18/2009	1,988.15	8.79	1,979.36	140	60	<0.5	<0.5	<0.5	<1.0	---
MW-17	5/12/2009	1,988.15	8.66	1,979.49	180	<50	<0.5	<0.5	<0.5	<1.0	---
MW-17	1/12/2010	1,988.15	10.15	1,978.00	160	<50	<0.5	<0.5	<0.5	<1.0	---
MW-17	3/16/2010	1,988.15	8.13	1,980.02	160	<50	<0.5	<0.5	<0.5	<1.0	---
MW-17	6/17/2010	1,988.15	8.38	1,979.77	<50	97	<0.5	<0.5	<0.5	<1.0	---
MW-17	9/14/2010	1,988.15	9.67	1,978.48	230	55	<0.5	<0.5	<0.5	<1.0	---
MW-17	12/8/2010	1,988.15	9.08	1,979.07	190	<50	<0.5	<0.5	<0.5	<1.0	---
MW-17	2/16/2011	1,988.15	8.36	1,979.79	130	<50	<0.5	<0.5	<0.5	<1.0	---
MW-17	4/21/2011	1,988.15	6.91	1,981.24	130	130	<0.5	<0.5	<0.5	<1.0	---
MW-17	8/16/2011	1,988.15	8.59	1,979.56	77	<50	<0.5	<0.5	<0.5	<1.0	---
MW-17	12/12/2011	1,988.15	9.87	1,978.28	<50	60	<0.5	<0.5	<0.5	<1.0	---
MW-17	3/27/2012	1,988.15	9.35	1,978.80	60	<50	<0.5	<0.5	<0.5	<1.0	---
MW-17	6/27/2012	1,988.15	9.36	1,978.79	50	70	<0.5	<0.5	<0.5	<1.0	---
MW-17	11/19/2012	1,988.15	10.67	1,977.48	<50	72	<0.5	<0.5	<0.5	<1.0	---
MW-17	5/23/2013	1,988.15	9.43	1,978.72	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-17[1]	12/9/2013	1,988.15	11.54	1,976.61	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-17[1]	3/17/2014	1,988.15	10.73	1,977.42	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-18	3/27/2012	1,975.09	8.96	1,966.13	230	50	<0.5	<0.5	<0.5	<1.0	---
MW-18	6/27/2012	1,975.09	9.19	1,965.90	240	60	<0.5	<0.5	<0.5	<1.0	---
MW-18	11/19/2012	1,975.09	10.09	1,965.00	130	55	<0.5	<0.5	<0.5	<1.0	---
MW-18	5/23/2013	1,975.09	9.31	1,965.78	190	<50	<0.5	<0.5	<0.5	<1.0	---
MW-18[1]	12/10/2013	1,975.09	10.84	1,964.25	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-18[1]	3/17/2014	1,975.09	10.21	1,964.88	<50	<50	<0.5	<0.5	<0.5	<1.0	---

TABLE 2
SUMMARY OF GROUNDWATER ELEVATION AND ANALYTICAL DATA
FORMER SONORA MAINTENANCE STATION
TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TOP OF CASING ELEVATION (MSL)	DEPTH TO GROUNDWATER (feet)	GROUNDWATER ELEVATION (MSL) (feet)	TPHg (µg/l)	TPHd (µg/l)	BENZENE (µg/l)	TOLUENE (µg/l)	ETHYL-BENZENE (µg/l)	TOTAL XYLENES (µg/l)	LEAD (µg/l)
MW-19	3/27/2012	1,990.08	20.43	1,969.65	110	60	<0.5	<0.5	<0.5	<1.0	---
MW-19	6/27/2012	1,990.08	20.39	1,969.69	130	90	<0.5	<0.5	<0.5	<1.0	---
MW-19	11/19/2012	1,990.08	21.80	1,968.28	65	71	<0.5	<0.5	<0.5	<1.0	---
MW-19	5/23/2013	1,990.08	20.61	1,969.47	84	<50	<0.5	<0.5	<0.5	<1.0	---
MW-19[1]	12/9/2013	1,990.08	22.72	1,967.36	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-19[1]	3/17/2014	1,990.08	21.97	1,968.11	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-20	3/27/2012	1,992.76	15.66	1,977.10	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-20	6/27/2012	1,992.76	15.80	1,976.96	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-20	11/19/2012	1,992.76	17.03	1,975.73	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-20	5/23/2013	1,992.76	15.72	1,977.04	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-20[1]	12/10/2013	1,992.76	17.73	1,975.03	<50	<50	<0.5	<0.5	<0.5	<1.0	<5
MW-20[1]	3/17/2014	1,992.76	16.82	1,975.94	<50	<50	<0.5	<0.5	<0.5	<1.0	<5
MW-21	11/19/2012	1,973.46	9.73	1,963.73	<50	65	<0.5	<0.5	<0.5	<1.0	---
MW-21	5/23/2013	1,973.46	8.84	1,964.62	<50	67	<0.5	<0.5	<0.5	<1.0	---
MW-21[1]	12/10/2013	1,973.46	11.28	1,962.18	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-21[1]	3/17/2014	1,973.46	10.45	1,963.01	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-22	11/19/2012	1,968.74	12.52	1,956.22	<50	69	<0.5	<0.5	<0.5	<1.0	---
MW-22	5/23/2013	1,968.74	11.90	1,956.84	<50	110	<0.5	<0.5	<0.5	<1.0	---
MW-22[1]	12/10/2013	1,968.74	13.38	1,955.36	<50	57 [3]	<0.5	<0.5	<0.5	<1.0	---
MW-22[1]	3/17/2014	1,968.74	12.76	1,955.98	<50	<50	<0.5	<0.5	<0.5	<1.0	---
MW-23	6/24/2014	NA	16.42	NA	260	300/140*	0.54	<0.5	<0.5	1.4	---
AS-2	6/10/2014	NA	20.44	NA	5,600	670	960	76	290	201	---

Notes: MSL = Mean sea level
TPHg = Total petroleum hydrocarbons as gasoline
TPHd = Total petroleum hydrocarbons as diesel
µg/l = Micrograms per liter
< = Less than the laboratory reporting limit
--- = Not tested
* Analyzed using silica gel cleanup
[1] = Samples collected using Low Flow Purging Protocol
[2] = Laboratory report notation "Lower boiling hydrocarbons present, atypical for Diesel Fuel."
[3] = Laboratory report notation "Some hydrocarbons lower-boiling, some higher-boiling than Diesel."

TABLE 3
SUMMARY OF GROUNDWATER ANALYTICAL DATA - VOCs and FOCs
FORMER SONORA MAINTENANCE STATION
TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	MTBE 8260 (µg/l)	FOCs (µg/l)	NAPH-THALENE (µg/l)	1-2,DCA (µg/l)	ACETONE (µg/l)	IPB (µg/l)	n-PB (µg/l)	1,3,5-TMB (µg/l)	tert-BB (µg/l)	1,2,4-TMB (µg/l)	sec-BB (µg/l)	p-IPT (µg/l)	n-BB (µg/l)
MW-9	10/31/2002	105	---	---	---	---	---	---	---	---	---	---	---	---
MW-9	12/30/2003	<5	ND	---	---	---	---	---	---	---	---	---	---	---
MW-9	4/1/2004	<50	ND	---	---	---	---	---	---	---	---	---	---	---
MW-9	5/25/2004	96	ND	---	---	---	---	---	---	---	---	---	---	---
MW-9	5/17/2005	<5	---	---	---	---	---	---	---	---	---	---	---	---
MW-9	3/26/2007	<5	---	---	---	---	---	---	---	---	---	---	---	---
MW-9	6/4/2007	<10	---	---	---	---	---	---	---	---	---	---	---	---
MW-9	9/11/2007	<0.5	---	---	---	---	---	---	---	---	---	---	---	---
MW-9	12/3/2007	210	---	---	---	---	---	---	---	---	---	---	---	---
MW-9	4/8/2008	49	---	---	---	---	---	---	---	---	---	---	---	---
MW-9	5/7/2008	160	---	---	---	---	---	---	---	---	---	---	---	---
MW-9	8/6/2008	110	---	---	---	---	---	---	---	---	---	---	---	---
MW-9	12/2/2008	160	---	---	---	---	---	---	---	---	---	---	---	---
MW-9	2/18/2009	<5.0	---	---	---	---	---	---	---	---	---	---	---	---
MW-9	5/12/2009	29	---	---	---	---	---	---	---	---	---	---	---	---
MW-9	1/11/2010	19	---	---	---	---	---	---	---	---	---	---	---	---
MW-9	3/15/2010	<2.5	---	---	---	---	---	---	---	---	---	---	---	---
MW-9	6/17/2010	35	---	---	---	---	---	---	---	---	---	---	---	---
MW-9	9/14/2010	83	---	---	---	---	---	---	---	---	---	---	---	---
MW-9	12/8/2010	3.0	---	---	---	---	---	---	---	---	---	---	---	---
MW-9	2/16/2011	13	---	---	---	---	---	---	---	---	---	---	---	---
MW-9	4/21/2011	<0.5	---	---	---	---	---	---	---	---	---	---	---	---
MW-9	8/16/2011	89	---	---	---	---	---	---	---	---	---	---	---	---
MW-9	12/12/2011	60	---	---	---	---	---	---	---	---	---	---	---	---
MW-9	3/27/2012	<0.5	---	270	<0.5	---	---	---	---	---	---	---	---	---
MW-9	6/27/2012	<10	---	370	<10	---	---	---	---	---	---	---	---	---
MW-9	11/19/2012	37	---	340	<0.5	---	---	---	---	---	---	---	---	---
MW-9	5/23/2013	19	---	330	<0.5	---	---	---	---	---	---	---	---	---
MW-9[1]	12/10/2013	36	---	250	<4.0	8.4	56	130	140	17	830	12	7.4	16
MW-9[1]	3/18/2014	<4.0	---	220	<4.0	15	54	130	150	19	890	13	7.6	16
MW-10	10/31/2002	39	---	---	---	---	---	---	---	---	---	---	---	---
MW-10	12/30/2003	<5	ND	---	---	---	---	---	---	---	---	---	---	---
MW-10	4/1/2004	<50	ND	---	---	---	---	---	---	---	---	---	---	---
MW-10	5/25/2004	45.8	ND	---	---	---	---	---	---	---	---	---	---	---
MW-10	5/17/2005	<5	---	---	---	---	---	---	---	---	---	---	---	---
MW-10	3/26/2007	<10	---	---	---	---	---	---	---	---	---	---	---	---
MW-10	6/4/2007	<10	---	---	---	---	---	---	---	---	---	---	---	---
MW-10	9/11/2007	<0.5	---	---	---	---	---	---	---	---	---	---	---	---

GEOCON
CONSULTANTS, INC.
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. S9800-01-13C
March 7, 2014

Mr. Shawn Ogletree
California Department of Transportation - District 6
Hazardous Waste Branch
855 M Street, Suite 200
Fresno, California 93721

Subject: ADDITIONAL SITE INVESTIGATION WORKPLAN
OLD SONORA MAINTENANCE STATION
785 MONO WAY, SONORA, TUOLUMNE COUNTY, CALIFORNIA
CONTRACT NO. 06A1895, TASK ORDER NO. 13
EA NO. 43-910206, CALTRANS PROJECT NO. 00-0000-0819

Dear Mr. Ogletree:

In accordance with the California Department of Transportation (Caltrans) Contract No. 06A1895, Task Order (TO) No. 13C, Geocon Consultants, Inc. has prepared this Additional Site Investigation (ASI) Workplan for the Old Sonora Maintenance Station (the Site) located at 785 Mono Way in Sonora, Tuolumne County, California. This Workplan describes the scope of services requested by Caltrans and outlines procedures and methods to be employed by Geocon to complete activities directed by the Central Valley Regional Water Quality Control Board (CVRWQCB) in their letter dated September 20, 2013. The site location is depicted on the Vicinity Map, Figure 1.

BACKGROUND

Four underground storage tanks (USTs) were removed from the Site in July 1986. Between 1987 and 1991, fourteen onsite soil borings and eight groundwater monitoring wells (MW-1 through MW-8) were advanced to evaluate the extent of subsurface soil and groundwater impacts beneath and adjacent to the Site. Groundwater has been encountered at depths between 10.5 and 18 feet, and groundwater flow is consistently directed toward the south and southeast. Wells MW-1 and MW-3 through MW-7 were destroyed in 1993 due to the construction of the Greenley Road extension. In April 2002 Geocon abandoned wells MW-2 and MW-8 by pressure grouting in accordance with Tuolumne County Department of Environmental Health (TCDEH) permit requirements.

Based on the presence of fuel oxygenate compounds (FOCs) in groundwater at the Site, the CVRWQCB required the installation of additional groundwater monitoring wells. Seven groundwater monitoring wells (MW-9 through MW-15) were installed at onsite and offsite locations in 2002 and 2003. We have not been able to locate well MW-14 since May 2005. Attempts to locate well MW-14 have been unsuccessful as it appears to be located beneath a retaining wall.

Additional investigation, consisting of the drilling of ten hollow-stem auger (HSA) borings for the collection of grab groundwater samples, was performed in January 2008 to evaluate the potential presence of petroleum hydrocarbons in groundwater along Greenley Road, Sanguinetti Road and Old Wards Ferry Road downgradient of well MW-15. Based on the results of the January 2008 investigation, we installed groundwater monitoring wells MW-16 and MW-17 in May 2008. We reinitiated quarterly groundwater monitoring activities at the Site in March 2007.

Road construction activities were performed adjacent to the Site in June and July 2010. We recommended that wells MW-15 and MW-16 be destroyed due to their locations in the middle of the expanded intersection of Greenley Road and Sanguinetti Road and in the landscaped area between the new Old Wards Ferry Road alignment and the former Old Wards Ferry Road alignment. We further recommended that two replacement wells be installed downgradient of well MW-15 along the new Old Wards Ferry road alignment. In correspondence dated January 7, 2011, the CVRWQCB approved our recommendation to install new wells; however, they requested that one well be installed near the southwest corner of the intersection of Greenley Road and Sanguinetti Road, and that the second well be installed near the northeast corner of Greenley Road and Sanguinetti Road.

In correspondence dated December 13, 2011, the CVRWQCB requested the addition of naphthalene and 1,2-dicholorethane (1,2-DCA) to the groundwater monitoring program.

In December 2011, we destroyed monitoring wells MW-15 and MW-16 in accordance with TCDEH requirements. Each well was destroyed by pressure grouting the casing and boring annulus to the ground surface using a portable pump. We also advanced two HSA borings to facilitate the installation of a 2-inch-diameter groundwater monitoring well (MW-18). Existing wells are shown on Figure 2.

We attempted to install well MW-19 at the northeast corner of Greenley Road and Old Wards Ferry Road but then aborted the installation after an unidentified storm drain pipe was punctured at a depth of approximately 2 feet. Well MW-19 and an additional well (MW-20) were installed by AMEC as part of a Caltrans pilot test program for sulfate injection (Figure 2). Wells MW-19 and MW-20 have been added to the groundwater monitoring program for the Site. In correspondence dated January 27, 2012, the CVRWQCB requested data for sodium, bromide, magnesium, sulfate and total dissolved solids (TDS) from wells MW-10 and MW-20. Based on March 2012 sample results, in correspondence dated July 9, 2012, the CVRWQCB stated that if the results in the compliance well (MW-10) exceed 20% of the background well (MW-20), then a contingency plan must go into effect. The contingency plan consists of pumping the impacted well until concentrations return to within 20% of background levels.

In accordance with the request of Caltrans, we also submitted plans and specifications to construct a remediation system at the Site. The project will include above- and below-ground plumbing of six existing air sparge (AS) and soil vapor extraction (SVE) wells to skid- or trailed-mounted AS and SVE systems. Caltrans is currently procuring funding for installation of the proposed SVE/AS system.

Based on the petroleum hydrocarbon concentrations reported for groundwater samples collected from wells MW-18 and MW-19, two additional wells were installed downgradient of the Site. In October 2012, we installed well MW-21 east of the intersection of Old Wards Ferry Road and Sanguinetti Road, and installed well MW-22 south-southeast of the intersection of Old Wards Ferry Road and Sanguinetti Road.

WORK IN PROGRESS

In a directive letter dated September 20, 2013, the CVRWQCB requested the completion of the following tasks:

1. Provide a schedule for the construction, startup and monitoring of the AS/SVE remediation system.
2. Collect groundwater samples in order to evaluate the downgradient extent and potential vertical migration of groundwater impacts.

3. Provide a table with current well construction details and a protocol for collecting samples from submerged screens.
4. Analyze groundwater samples from wells EW-1, MW-2, MW-9, MW-10, MW-11 and MW-20 for total lead.
5. Collect and analyze upstream and downstream surface water samples from the creek located approximately 125 feet east of the Site.
6. Collect soil and vapor samples adjacent to well MW-10.

Task 1 will be completed after Caltrans procures funding for installation of the proposed system. Task 2 is the basis of this Workplan. Tasks 3 through 5 were completed in December 2013. Well construction details for each of the existing site-related wells are on Table 1. Groundwater samples from wells MW-9, MW-10, MW-11, and MW-20 were analyzed for lead. Well MW-2 was destroyed, and well EW-1 was partially buried and appeared to be damaged; therefore, these wells could not be sampled or analyzed for lead. Upstream and downstream samples of the creek located downgradient of the Site were collected from the east and west sides of Old Wards Ferry Road, respectively. Results of the lead analysis and creek sampling were presented in our *Groundwater Monitoring Report – December 2013*, dated February 11, 2014. Task 6 will be completed upon ceasing remediation activities.

Geosyntec is currently performing a study for Caltrans evaluating various sampling techniques, including low-flow purging. The results of Geosyntec's study will be presented after completion of three quarterly sampling events.

PROJECT SCOPE AND PURPOSE

Our proposed scope of work includes advancing two soil borings (GS9 and GS10), collecting grab groundwater samples from each boring, collecting a groundwater sample from air sparge well AS-2 and analysis of the samples by a California-certified analytical laboratory. The purpose of collecting these samples is to evaluate the vertical extent of groundwater impacts in the source area and to determine the lateral extent of groundwater impacts in the downgradient direction (south-southeast). The field work, sampling, laboratory analysis, and related tasks will be performed in general accordance with Contract 06A1895 requirements.

Outlined below is a summary of the scope of services to be performed under TO No. 13C:

Pre-field Activities

- Utilize the project-specific health and safety plan (HSP) to provide guidelines on the use of personal protective equipment and the health and safety procedures to be implemented during the proposed field activities.
- Mark the proposed well installation and destruction locations with white paint as required by law and provide a minimum of 48-hours notice to the local public utilities via Underground Service Alert (USA). We will also subcontract with a private utility locating service to further attempt to delineate subsurface public utilities and conduits in proximity to the proposed boring locations.
- Obtain monitoring well installation and encroachment permits (including traffic control plan) from TCDEH and the City of Sonora and pay requisite fees.
- Retain the services of Statewide Traffic Safety and Signs to provide lane closure services for the drilling activities along Old Wards Ferry Road.

- Retain the services of Cascade Drilling (Cascade), a Caltrans-approved, C57-licensed drilling company to advance the soil borings.
- Retain the services of Advanced Technology Laboratories (ATL), a Caltrans-approved and California-certified analytical laboratory located in Signal Hill, California, to perform chemical analysis of soil and groundwater samples.

Field Activities

To evaluate the vertical extent of groundwater impacts beneath the Site, we propose to collect a groundwater sample from air sparge well AS-2 and advance and collect a grab groundwater sample from sonic boring GS9. To assess the lateral extent of groundwater impacts, we propose to advance and collect a grab groundwater sample from sonic boring GS10. The locations of the two proposed borings are shown on Figure 2. A summary of the methods and techniques to be used to advance the borings and collect the samples is below.

Proposed Sonic Boring GS9

We will advance soil boring GS9 into the second-encountered groundwater zone beneath the Site utilizing a sonic drilling rig. The boring will be advanced to a minimum depth of 45 feet for the purposes of facilitating the collection of a grab groundwater sample. The minimum depth of 45 feet was directed by the CVRWQCB in their letter dated September 20, 2013, and represents a depth that is 10 feet deeper than the deepest screened onsite monitoring well. We will collect continuous soil cores for the total depth of the boring and place them in wooden core boxes for logging purposes. Our field geologist, a California Professional Geologist, will log the soil in accordance with the Unified Soil Classification System and note staining, odors, or other indicators, if encountered, that suggest the presence of contamination. The soil cores will also be field screened with a photo-ionization detector (PID) to assess possible qualitative indicators of volatile organic compounds (VOCs). The PID readings will be recorded on the field boring logs.

To prevent cross-contamination of the shallow and deeper water-bearing zones, the sonic drilling rig will use 6-inch-diameter rods until we encounter the lower-confining layer of the first groundwater zone or reach a depth of 35 feet, whichever occurs first. The 6-inch rods will be temporarily left in place as a conductor casing and we will purge any water from inside the rods prior to continuing with drilling. Once the temporary conductor casing is in place, the sonic drilling rig will advance 4-inch-diameter drilling rods in the annulus of the conductor casing until the second groundwater bearing zone is encountered.

Proposed Sonic Boring GS10

We will advance soil boring GS10 approximately 3 feet into the first-encountered groundwater zone utilizing a sonic drilling rig. Based on historical groundwater data, we anticipate groundwater to be encountered at a depth between 10 and 15 feet. We will collect continuous soil cores for the total depth of the boring and place them in wooden core boxes for logging purposes. Our field geologist will log the boring following USCS, note possible presence of contamination, and record PID readings of the cuttings as previously described.

Grab Groundwater Sampling – GS9 and GS10

We will temporarily install 1-inch-diameter polyvinyl chloride (PVC) casing with a 5-foot section of 0.010-inch slotted screen placed at the bottom of each boring. We will collect the groundwater samples using a small-diameter, stainless steel bailer or new plastic tubing and a check valve. We will then seal, label and place the samples in an ice chest containing ice and transport them to ATL using standard chain-of-custody documentation.

Groundwater Sampling – AS-2

We will also collect a groundwater sample from existing air sparge well AS-2, which is composed of 2-inch-diameter, schedule 80 PVC casing with a 5-foot section of 0.010-inch-slotted screen set from 35 to 40 feet. The groundwater sample from AS-2 will allow us to evaluate potential vertical contamination downgradient of GS9.

We will purge approximately three well volumes of groundwater from well AS-2 using a portable, 12-volt submersible pump or a dedicated disposable bailer. During well purging activities, we will monitor the pH, electrical conductivity and temperature of the extracted water and record this information on a Monitoring Well Sampling Data sheet. We will place the extracted groundwater into a Department of Transportation-approved, 17-H, 55-gallon drum for temporary storage onsite pending offsite disposal.

Following purging, we will collect a groundwater sample from the well using a pre-cleaned, dedicated disposable polyethylene bailer. We will decant the sample from the bailer through a low-flow sample release tube into analysis-appropriate, laboratory-provided sample containers. We will seal, label, and place the samples in an ice chest containing ice for transport to ATL under chain-of-custody documentation.

Backfill/Grouting

Upon completion of the soil and groundwater sampling, borings GS9 and GS10 will be backfilled with a cement/bentonite grout to the ground surface in accordance with TCDEH permit requirements. We will coordinate the grouting of the borings with the TCDEH grout inspector.

Quality Assurance/ Quality Control

Quality assurance/quality control (QA/QC) procedures will be provided during the field exploration activities. These procedures will include hot water pressure-washing downhole drilling equipment prior to and between borings. If used, we will decontaminate the pump before and after each use by washing in an Alconox™ solution followed by fresh and distilled water rinses.

Waste Disposal

Soil cuttings, purge water and rinseate generated during the drilling activities will be temporarily stored at the Old Sonora Maintenance Station in labeled, Department of Transportation-approved, 55-gallon drums pending subsequent disposal following regulatory protocol.

Report Preparation

An ASI Report will be prepared to transmit the field data. The Report will include the following:

- Background summary,
- Scope of services performed,
- Observations during the field activities,
- Results of field activities,
- GPS boring and sample location data,
- Tabulated laboratory data tables,
- Confirmation numbers for GeoTracker submittals,
- Vicinity Map and Site Plan indicating boring and well locations,
- Site photographs, and
- Appendices including regulatory permits, boring logs, laboratory reports and chain-of-custody documentation.

Caltrans will be provided with a draft report, and upon receipt and incorporation of Caltrans' comments, we will provide two hard copies and one electronic (CD) copy of the finalized report.

Please contact us if there are any questions concerning the contents of this Workplan or if we may be of further service.

Sincerely,

GEOCON CONSULTANTS, INC.

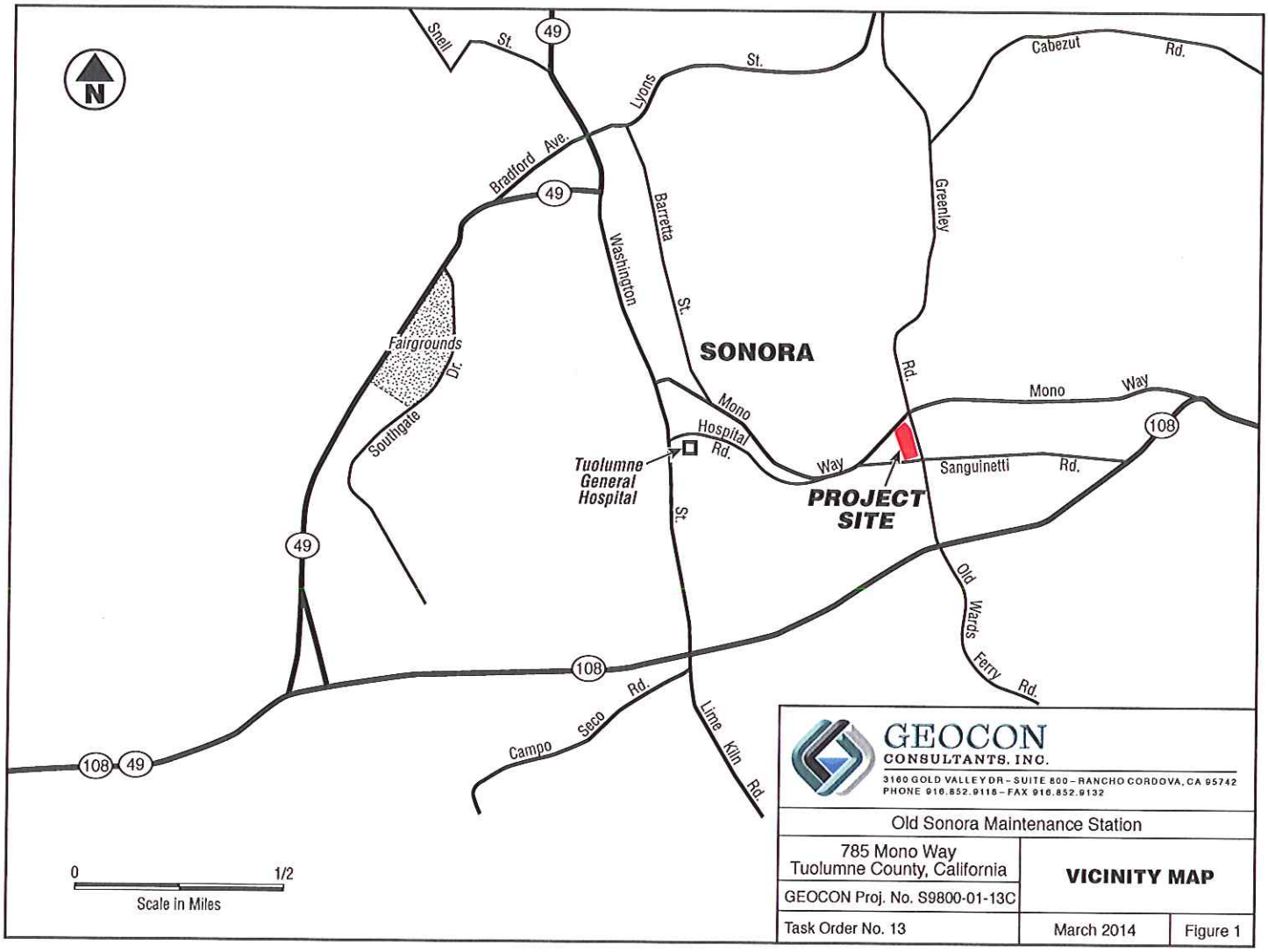
Josh Ewert, PG
Project Geologist

Rebecca L. Silva
Project Manager

(1) Addressee
(1) CVRWQCB, Pete Minkel
(1) TCDEH (with permit application)

Attachments: Figure 1, Vicinity Map
Figure 2, Site Plan

Table 1, Well Construction Details



GEOCON
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3160 GOLD VALLEY DR – SUITE 800 – RANCHO CORDOVA, CA 95742
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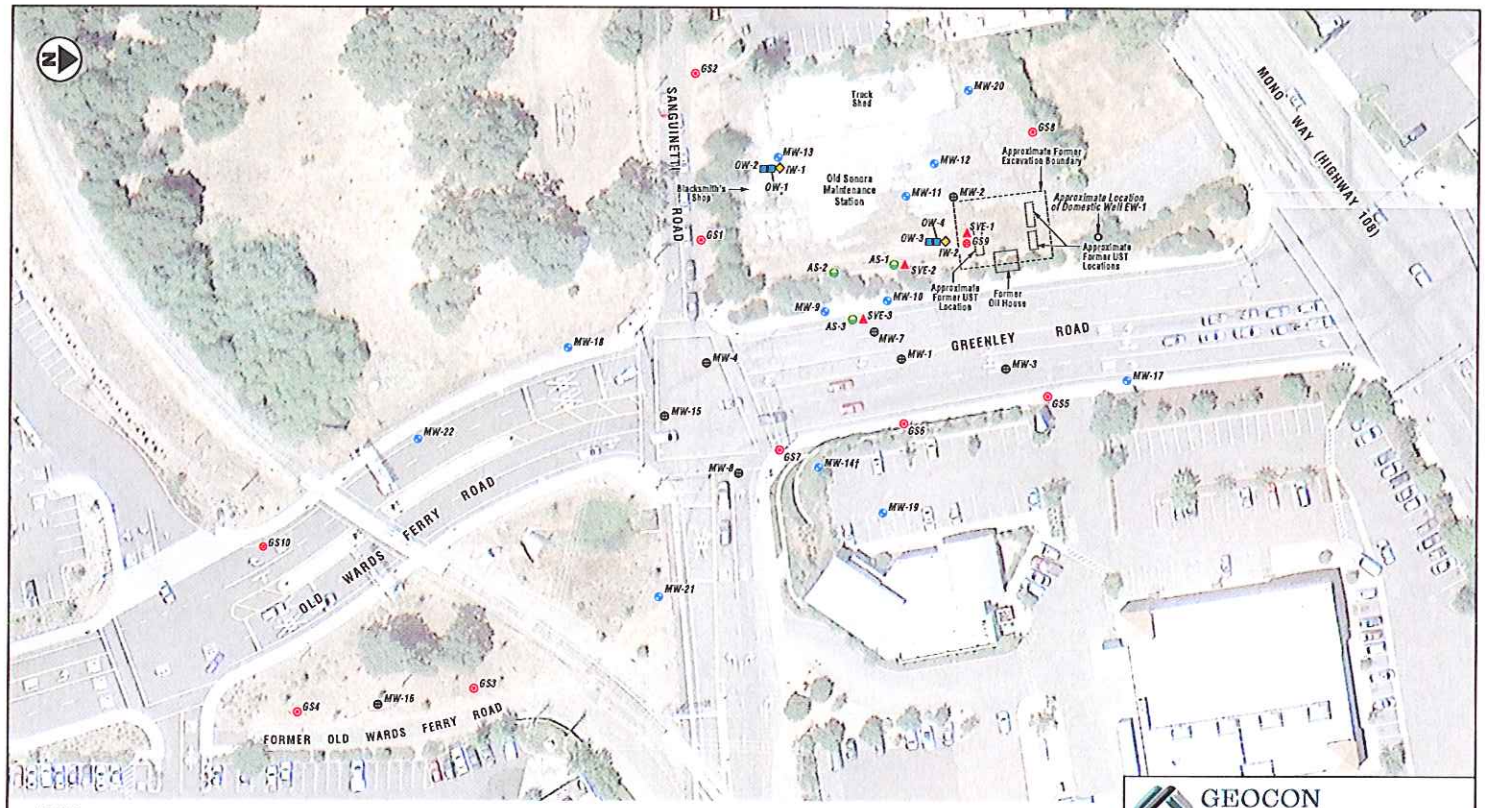
Old Sonora Maintenance Station		
785 Mono Way Tuolumne County, California	**VICINITY MAP**	
GEOCON Proj. No. S9800-01-13C		
Task Order No. 13	March 2014	Figure 1



LEGEND:

- MW-9 Approximate Monitoring Well Location
- MW-8 Approximate Destroyed Monitoring Well Location
- GS8 Approximate Grab Groundwater Sample Boring Location
- SVE-1 Approximate SVE Pilot Test Well Location
- AS-1 Approximate Air Sparge Pilot Test Well Location
- IW-1 Approximate Injection Well Location
- OW-1 Approximate Observation Well Location
- GS9 Proposed Grab Groundwater Sample Boring Location
- f Well Located Beneath Retaining Wall
- UST Underground Storage Tank

0 60
Approx. Scale In Feet

GEOCON CONSULTANTS, INC.
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Old Sonora Maintenance Station		
785 Mono Way Tuolumne County, California	**SITE PLAN**	
GEOCON Proj. No. S9800-01-13C		
Task Order No. 13	March 2014	Figure 2

TABLE 1
WELL CONSTRUCTION DETAILS
CALTRANS OLD SONORA MAINTENANCE STATION
SONORA, CALIFORNIA

Well ID	Date Installed	Drilling Subcontractor/ Consultant	Boring Diameter (inches)	Depth of Boring (feet)	Top-of-Casing Elevation (feet msl)	Well Casing Diameter (inches)	Well Casing Material, Blank	Well Casing Material, Screen (slot size, inches)	Screen Interval (feet)	Depth to Top of Screen (feet)	Depth to Bottom of Screen (feet)	Top of Screen Elevation (ft msl)	Bottom of Screen Elevation (feet msl)	Filter Pack Interval (feet)	Filter Pack Size (mm)	Seal Interval (feet)
MW-9	10/23/2002	West Hazmat/International Technology Corporation	8	18	1,978.45	2	Sch. 40 PVC[1]	Sch. 40 PVC[2] (0.01)	8.0 - 18.0	8	18	1970.45	1960.45	6-18	#3	0-6
MW-10	10/23/2002	West Hazmat/International Technology Corporation	8	13	1,980.53	2	Sch. 40 PVC[1]	Sch. 40 PVC[2] (0.01)	6.0 - 13.0	6	13	1974.53	1967.53	4-13	#3	0-4
MW-11	10/22/2002	West Hazmat/International Technology Corporation	8	25	1,990.72	2	Sch. 40 PVC[1]	Sch. 40 PVC[2] (0.01)	15.0 - 25.0	15	25	1975.72	1965.72	13-25	#3	0-13
MW-12	10/22/2002	West Hazmat/International Technology Corporation	8	25	1,991.32	2	Sch. 40 PVC[1]	Sch. 40 PVC[2] (0.01)	15.0 - 25.0	15	25	1976.32	1966.32	13-25	#3	0-13
MW-13	12/9/2003	PC Exploration/Shaw E&I, Inc.	8	35	1,991.29	4	Sch. 40 PVC	Sch. 40 PVC (0.02)	17.0 - 32.0	17	32	1974.29	1959.29	15.5-32.5	#3	0-15.5
MW-17	5/6/2008	Gregg Drilling/Geocon	8	25	1,988.15	2	Sch. 40 PVC	Sch. 40 PVC (0.02)	10.0 - 25.0	10	25	1978.15	1963.15	8-25	#2/12	0-8
MW-18	12/22/2011	Gregg Drilling/Geocon	8	25	1,975.09	2	Sch. 40 PVC	Sch. 40 PVC (0.02)	9.5 - 24.5	9.5	24.5	1965.59	1950.59	7.5-25	#2/12	0-7.5
MW-19	1/31/2012	Precision Sampling Inc /Amec	6	35.4	1,990.08	2	Sch. 40 PVC	Sch. 40 PVC (0.01)	16.41 - 31.0	16.41	31	1973.67	1959.08	13-35.4	#2/12	0-13
MW-20	2/6/2012	Precision Sampling Inc /Amec	6	25	1,992.76	2	Sch. 40 PVC	Sch. 40 PVC (0.01)	9.37 - 24.0	9.37	24	1983.39	1968.76	7-25	#2/12	0-7
MW-21	10/30/2012	Gregg Drilling/Geocon	6	25.5	1,973.46	2	Sch. 40 PVC	Sch. 40 PVC (0.02)	10.0 - 25.0	10	25	1963.46	1948.46	9-25	#2/12	0-9
MW-22	10/29/2012	Gregg Drilling/Geocon	6	25.5	1,968.74	2	Sch. 40 PVC	Sch. 40 PVC (0.02)	10.0 - 25.0	10	25	1958.74	1943.74	9-25	#2/12	0-9
AS-1	5/26/2009	Gregg Drilling/Geocon	—	25	—	2	Sch. 80 PVC	Sch. 80 PVC (0.01)	20.0-25.0	20	25	—	—	18-25	#2/12	0-18
AS-2	5/27/2009	Gregg Drilling/Geocon	—	40	—	2	Sch. 80 PVC	Sch. 80 PVC (0.01)	35.0-40.0	35	40	—	—	33-40	#2/12	0-33
AS-3	5/28/2009	Gregg Drilling/Geocon	—	25	—	2	Sch. 80 PVC	Sch. 80 PVC (0.01)	20.0-25.0	20	25	—	—	18-25	#2/12	0-18
SVE-1	5/26/2009	Gregg Drilling/Geocon	—	20	—	2	Sch. 40 PVC	Sch. 40 PVC (0.02)	5.0-20.0	5	20	—	—	4.5-20	#3	0-4.5
SVE-2	5/26/2009	Gregg Drilling/Geocon	—	20	—	2	Sch. 40 PVC	Sch. 40 PVC (0.02)	5.0-20.0	5	20	—	—	4.5-20	#3	0-4.5
SVE-3	5/28/2009	Gregg Drilling/Geocon	—	15	—	2	Sch. 40 PVC	Sch. 40 PVC (0.02)	5.0-15.0	5	15	—	—	4.5-15	#3	0-4.5

TABLE 1
WELL CONSTRUCTION DETAILS
CALTRANS OLD SONORA MAINTENANCE STATION
SONORA, CALIFORNIA

Well ID	Date Installed	Drilling Subcontractor/ Consultant	Boring Diameter (inches)	Depth of Boring (feet)	Top-of-Casing Elevation (feet msl)	Well Casing Diameter (inches)	Well Casing Material, Blank	Well Casing Material, Screen (slot size, inches)	Screen Interval (feet)	Depth to Top of Screen (feet)	Depth to Bottom of Screen (feet)	Top of Screen Elevation (ft msl)	Bottom of Screen Elevation (feet msl)	Filter Pack Interval (feet)	Filter Pack Size (sand)	Seal Interval (feet)
IW-1	2/3/2012	Precision Sampling Inc /Amec	6	30.1	1,991.35	2	Sch. 40 PVC	Sch. 40 PVC (0.01)	26.63-28.59	26.63	28.59	1964.72	1962.76	24.17-30.1	#2/12	0-24.17
IW-2	2/1/2012	Precision Sampling Inc /Amec	6	24.95	1,991.10	2	Sch. 40 PVC	Sch. 40 PVC (0.01)	18.35-23.0	18.35	23	1972.75	1968.10	16.0-24.11	#2/12	0-16.0
OW-1	2/3/2012	Precision Sampling Inc /Amec	6	30.2	1,991.30	2	Sch. 40 PVC	Sch. 40 PVC (0.01)	24.32-29.0	24.32	29	1966.98	1962.30	22.05-30.2	#2/12	0-22.05
OW-2	2/6/2012	Precision Sampling Inc /Amec	6	30.3	1,991.14	2	Sch. 40 PVC	Sch. 40 PVC (0.01)	24.24-29.0	24.24	29	1966.90	1962.14	21.9-30.3	#2/12	0-21.9
OW-3	2/2/2012	Precision Sampling Inc /Amec	6	24.9	1,991.14	2	Sch. 40 PVC	Sch. 40 PVC (0.01)	17.0-24.0	17	24	1974.14	1967.14	14.20-24.90	#2/12	0-14.20
OW-4	2/2/2012	Precision Sampling Inc /Amec	6	25	1,991.10	2	Sch. 40 PVC	Sch. 40 PVC (0.01)	16.95-24.0	16.95	24	1974.15	1967.10	14.8-25.0	#2/12	0-14.8

Notes: [1] The use of Sch. 40 PVC is assumed based on site knowledge.
[2] The use of Sch. 40 PVC is assumed based on site knowledge. The screen slot size is known based on boring logs.
msl - mean sea level
PVC - polyvinyl chloride
Sch. - schedule
-- data either not available or not applicable

FINAL REMEDIATION PLAN

PREPARED FOR:

CALIFORNIA DEPARTMENT OF TRANSPORTATION
DISTRICT 6
P.O. BOX 12616
FRESNO, CALIFORNIA 93705

PREPARED BY:

GEOCON CONSULTANTS, INC.
3160 GOLD VALLEY DRIVE, SUITE 800
RANCHO CORDOVA, CALIFORNIA 95742

GEOCON PROJECT NO. S9200-06-36A
TASK ORDER NO. 36

DECEMBER 2010

GEOCON
CONSULTANTS, INC.
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. S9200-06-36A
December 28, 2010

Mr. Terrence Fox
California Department of Transportation – District 6
Hazardous Waste Branch
2015 E. Shields Avenue, Suite 100
Fresno, California 93726

Subject: OLD SONORA MAINTENANCE STATION
785 MONO WAY
TUOLUMNE COUNTY, CALIFORNIA
CONTRACT NO. 06A1141
TASK ORDER NO. 36, EA NO. 10-0P6700
FINAL REMEDIATION PLAN

Dear Mr. Fox:

In accordance with the California Department of Transportation (Caltrans) Contract number (No.) 06A1141, Task Order No. 36, we have prepared this Final Remediation Plan (FRP) for the Old Sonora Maintenance Station (the Site) located at 785 Mono Way in Sonora, Tuolumne County, California. This FRP has been prepared in response to a Central Valley Regional Water Quality Control Board (CVRWQCB) September 17, 2009, directive, describes our proposed scope of services and outlines the procedures and methods to be employed to complete the services. The location of the Site is depicted on the Vicinity Map, Figure 1.

SITE LOCATION AND DESCRIPTION

The Site consists of the closed Caltrans Sonora Maintenance Station located at 785 Mono Way in Sonora, Tuolumne County, California. Former structures at the Site included a truck shed, blacksmith shop and office/bunkhouse each of which Caltrans arranged to have demolished in June 2009. The approximate project boundaries and former site features are depicted on the Site Plan, Figure 2.

BACKGROUND

Four underground storage tanks (USTs) were reportedly removed from the Site in July 1986. Between 1987 and 1991, fourteen onsite soil borings and eight groundwater monitoring wells (MW-1 through MW-8) were advanced to evaluate the extent of subsurface soil and groundwater impacts beneath and adjacent to the Site. Total petroleum hydrocarbons as gasoline and diesel (TPHg and TPHd) were reported for the soil and groundwater samples collected from the borings. Wells MW-1 and MW-3 through MW-7 were subsequently destroyed due to the construction of the Greenley Road extension.

Between 1996 and 2001, wells MW-2 and MW-8 were sampled quarterly. The conclusions in the June 2001 monitoring report indicated that, due to the lack of methyl tert-butyl ether (MTBE) reported for downgradient well MW-8, MTBE may not be migrating offsite.

In March 2001, a Final Request for Closure Report was submitted to the CVRWQCB. In order to continue the closure process, the CVRWQCB requested drilling of an additional soil boring and performance of one additional round of groundwater monitoring before well abandonment.

On April 3, 2002, Geocon collected a sample from well MW-2. The well box for MW-8 was damaged and the well could not be accessed for sampling. TPHg, MTBE, tert-amyl methyl ether (TAME) and tert-butanol (TBA) were reported in the groundwater sample collected from well MW-2 at respective concentrations of 65, 110, 1.8 and 38 micrograms per liter (µg/l). TPHd and benzene, toluene, ethylbenzene, and total xylenes (BTEX) were not reported at concentrations equal to or greater than their respective laboratory reporting limits (RLs). Historical groundwater monitoring data for wells MW-1 through MW-8 are presented on Table 1.

On April 4, 2002, Geocon advanced one soil boring and abandoned wells MW-2 and MW-8 by pressure grouting in accordance with Tuolumne County Department of Environmental Health (TCDEH) permit requirements. TBA, TAME and MTBE were reported for the grab groundwater sample collected from the boring at respective concentrations of 22, 0.9 and 83 µg/l.

Based on the presence of fuel oxygenate compounds (FOCs) in the grab groundwater sample, the CVRWQCB required the installation of additional groundwater monitoring wells. Seven groundwater monitoring wells (MW-9 through MW-15) were installed at onsite and offsite locations in 2002 and 2003. We have not been able to locate well MW-14 since May 2005. Attempts to locate well MW-14 have been unsuccessful, and it appears to be located beneath a retaining wall. Historical groundwater monitoring results for wells MW-9 through MW-15 are presented on Table 2.

Groundwater samples were analyzed for sulfate, nitrate, dissolved iron, dissolved manganese and methane to evaluate remediation by natural attenuation (RNA) during six groundwater monitoring events conducted between March 2007 and May 2008. Field measurements including dissolved oxygen, oxidation reduction potential and pH were also collected. The historical RNA data collected for the Site suggests that active biodegradation of petroleum hydrocarbons through natural attenuation is occurring. A summary of the RNA data collected for the Site is presented on Table 3.

Additional investigation, consisting of the drilling of ten hollow-stem auger borings for the collection of grab groundwater samples, was performed on January 9 and 10, 2008, to evaluate the potential presence of petroleum hydrocarbons in groundwater along Greenley Road, Sanguinetti Road and Old Wards Ferry Road downgradient of well MW-15. Based on the results of the January 2008 investigation, we installed groundwater monitoring wells MW-16 and MW-17 at the Site in May 2008. We began quarterly groundwater monitoring activities at the Site in March 2007. Historical groundwater monitoring results for wells MW-16 and MW-17 are presented on Table 2. The approximate locations of the former and existing groundwater monitoring wells are depicted on Figure 2.

We prepared a *Remedial Action Options Report and Site Conceptual Model* dated February 9, 2009. Unsaturated soil impacts are present at depths between 7 and 15 feet beneath the former UST locations; therefore, soil vapor extraction (SVE) was recommended as the preferred alternative to treat the unsaturated soils at the Site. Air-sparging (AS) was recommended as the most suitable remedial alternative for the impacted groundwater beneath the Site. We further recommended that these technologies be field pilot tested to further evaluate their feasibility for the Site. In correspondence dated February 24, 2009, the CVRWQCB concurred with our recommendation. Based on the pilot test results, we concluded that a combination of SVE and AS remediation techniques would be effective in reducing the residual petroleum hydrocarbons in the soil and groundwater beneath the Site and that the existing SVE and AS well network appears sufficient to initiate remediation at the Site. We recommended that a Corrective Action Plan (CAP) be prepared as necessary to install, operate and maintain a SVE/AS system for the Site using the existing well network. In correspondence dated

September 17, 2009, the CVRWQCB concurred with our recommendation, and requested preparation of this FRP as the last stage of CAP preparation.

SITE GEOLOGY AND HYDROGEOLOGY

According to the *Geologic Map of the San Jose Sheet*, prepared by the California Division of Mines and Geology dated 1966, the Site is located within the Sierra Nevada Mountains, approximately 49 miles east of Stockton and approximately 74 miles southeast of Sacramento. The Site is located approximately 0.6 mile east of a strand of the potentially active Melones fault, approximately 6 miles southwest of the inactive Shoo Fly Thrust and approximately 64 miles west-southwest of the active Robinson Creek fault. Surficial soils are generally comprised of compacted fill overlying sand underlain by Cretaceous Period granitic bedrock.

Generalized schematic cross-sections of the Site are presented on Figures 3 and 4, Cross-Section A-A' and B-B', respectively. During drilling activities at the Site, an upper soil layer extending to depths of 1 to 8 feet was encountered overlying granitic bedrock extending as deep as 35 feet. The upper soil layer consists of silty sand or clayey sand near the surface grading to a dense, partly disintegrated granitic bedrock that excavates to sand and silty sand.

Recent quarterly groundwater monitoring results show that the depth to first groundwater beneath the Site is typically between 5 and 22 feet below the top of the well casings (TOC). This water is unconfined and represents the piezometric surface beneath the Site. Historical groundwater flow beneath the Site is directed generally towards the south-southeast with an average gradient of 0.04. A summary of the TOC elevations, groundwater depth measurements and Mean Sea Level elevations is presented on Table 2.

REMEDIAL ACTION WORKPLAN

The scope of services presented in this FRP has been developed to comply with September 17, 2009, CVRWQCB directives. It is proposed that the pre-existing well network of three AS and three SVE wells be used in a full-scale AS/SVE system designed to address the most heavily petroleum hydrocarbon-impacted groundwater and soil remaining beneath the Site. The proposed remediation will include permitting and installing the AS/SVE system and performing compliance sampling and regular maintenance on the remediation system. Each of these activities is further described in the following sections.

Pre-field Activities

- Update the existing site health and safety plan (HSP) as necessary to address this phase of the project. The HSP will provide guidelines on the use of personal protective equipment and the health and safety procedures to be implemented during the proposed field activities.
- Contact the Tuolumne County Building Department and obtain a commercial building permit (if necessary) for the construction of the AS/SVE system and associated security enclosure.
- Contact Pacific Gas and Electric to supply temporary power to the remediation system.

REMEDIATION SYSTEM DESIGN

General Process Description

The proposed AS system will consist of the following items:

- existing wells AS-1, AS-2 and AS-3
- a positive displacement blower attached to the three AS wells
- check valves and pressure relief valves
- UL-listed electrical assembly
- miscellaneous valves, piping and gauges.

The proposed SVE/catalytic oxidizer system will consist of the following items:

- existing wells SVE-1, SVE-2 and SVE-3
- a high volume blower attached to the three SVE wells
- a moisture knockout tank installed ahead of the blower
- an electric catalytic oxidizer unit equipped with an electric heater
- flame retardant blankets and/or sound panels for noise control (if necessary)
- UL-listed electrical assembly

Power to the AS and SVE systems will be configured in such a way that a SVE system shutdown will also shut off the AS compressor. The AS manifold, trench and well construction detail are shown on Figure 5.

Air sparging is an in-situ remedial technology that reduces concentrations of volatile constituents in petroleum products that are adsorbed to soils and dissolved in groundwater. This technology involves the injection of contaminant-free air into the subsurface saturated zone, enabling a phase transfer of hydrocarbons from a dissolved state to a vapor phase. The air is then vented through the unsaturated zone. When air sparging is combined with SVE, the SVE system creates a negative pressure in the unsaturated zone through a series of extraction wells to capture the diffusive vapor plume. SVE is also used to remediate petroleum hydrocarbons located in the vadose zone.

The SVE system blower is used to induce a vacuum in the soils above the groundwater table (unsaturated soil or vadose zone). Volatile organic compounds (VOCs) in the vapor phase follow the pressure differential created by the applied vacuum through the soil and toward the extraction well points. The extracted air is forced through the knockout tank where moisture is captured. The captured water will be transferred using an automated discharge pump to a 500- gallon poly tank or engineer's equivalent for storage until offsite disposal. The VOC-contaminated air stream is treated by an electric catalytic oxidizer where the VOCs are destroyed by combustion at a temperature close to 650-degrees Fahrenheit using an electric heater. Due to the initially high concentrations observed during the pilot test, it should be anticipated that the SVE/catalytic oxidizer system may require some dilution of influent air concentrations to ensure proper catalytic combustion efficiency during the initial system operation. The SVE manifold, trench and well construction detail are shown on Figure 6.

Each of the AS wells and each of the SVE wells will be separately plumbed via subsurface piping to a manifold situated within the system compound area. The manifolds will be constructed with flow control valves, flow meters, sample ports, and vacuum or pressure gauges as necessary to independently control flow and monitor each injection or extraction well. The AS and SVE manifold

and well construction details are shown on Figure 5 and 6, respectively. The AS and SVE system layouts and the process flow are shown on Figure 7, AS/SVE System Schematic. The location of the AS and SVE wells, trenches and manifolds are shown on Figure 8.

General Requirements

A Permit to Construct shall be obtained from the Tuolumne County Air Pollution Control District prior to installation of the remediation equipment. A Permit to Operate shall be obtained after system installation, startup, and confirmation that the system is working in accordance with permit requirements. In addition, a Tuolumne County building permit will be procured (if necessary) for construction of the system.

A new remediation compound will be constructed along the eastern border of the Site and adjacent to Greenley Road at the approximate location shown on Figure 8. The existing asphalt surface is expected to provide adequate support for the remediation equipment. Underground piping will be used to connect each individual AS and SVE well to their respective AS and SVE manifolds situated within the remediation compound. The remediation compound will be secured with security-slatted chain link fence. The manifolds will be constructed such that adequate maneuverable space is provided for within the compound.

Electrical systems and supplies shall be connected to conform to local and state requirements. An electrical panel will be enclosed within the remediation compound. The equipment shall be intrinsically safe, manufactured for use in a potentially hazardous location, and meet the requisite codes for building, electrical, and fire inspection.

Remediation System Details

AS Blower

The AS compressor will be a Rietschle DLR 100 positive displacement blower with a 7.5-horsepower (HP), 230 volt (V), 60 hertz, 22 amp, three-phase motor, or engineer's equivalent.

SVE Blower

The SVE blower will consist of a positive displacement blower with a 7.5-HP 230V, three-phase motor capable of a total flow of up to 250 cubic feet per minute and a vacuum of 6 inches of mercury, or engineer's equivalent.

Compound Piping

Pipe, pipefittings, and other incidental related items as required for complete piping systems to and from the remediation compound shall be as follows:

- 1-inch-diameter Schedule 40 poly vinyl chloride (PVC) shall be used for sampling ports,
- 2-inch-diameter Schedule 40 PVC shall be used as individual line risers and "bleed in" lines,
- 2-inch-diameter Schedule 40 PVC shall be used throughout the remainder of the compound (equipment connections and main header line),
- Appropriate reducers and applicable Schedule 40 PVC fittings shall be used to connect all piping for the AS and SVE systems, and

- Tracer wire shall be placed in each newly installed trench for the purpose of locating nonmetallic piping networks installed in trenches.

Knockout Tank

A 60-gallon capacity liquid/vapor separator or equivalent knockout tank equipped with a high level indicator and shut-off. An auto pump-out system with a 0.5-HP, single-phase motor shall be used to pump the water into a 500-gallon poly tank or engineer's equivalent.

Electrical Catalytic Oxidizer

The skid-mounted or trailer-mounted catalytic oxidizer will include a safety flame arrestor, electric heater, exhaust cooling air inlet, exhaust stack, inlet and outlet sample ports and a heat exchanger. Additional instrumentation will include a temperature controller, temperature driven dilution controller, hi-limit temperature controller with manual reset, chart recorder, air flow sensor and transmitter, and hour meter.

Electrical System

The electrical system to the remediation equipment compound shall consist of the following:

- Conduit and conduit fittings to be buried underground shall have an inside diameter not smaller than ¾-inch-diameter,
- Exposed conduit runs shall be rigid, galvanized steel or code-approved PVC conduit, and
- Empty conduit systems shall consist of conduits, junction boxes, plates, identification tags, fittings, and support devices; empty conduit systems shall be free from debris prior to final acceptance of the work.

System Compound

- The remediation system compound shall be approximately 20 feet by 20 feet and enclosed by new chain-link fencing. An 8-foot center-locking gate shall be centered in the new chain-link fencing installed on the western end of the compound.
- Height of the new fence posts shall be approximately 7 feet and topped with three strands of barbed wire; fencing shall contain suitable security covers or slats.

Sampling Protocol

Prior to startup of the AS/SVE system, influent and effluent vapor samples shall be collected to confirm proper performance of the system components. The samples shall be collected following the SVE blower (influent) and following the catalytic oxidizer (effluent) as shown on Figure 7. Each sample shall be analyzed for TPHg, BTEX, FOCs, 1,2-DCA and EDB following EPA Test Method TO-15. Upon establishing proper component performance, the system should place into full time operation and monitored per the following schedule.

- Daily for the first week of operation
- Once per week for the next three weeks

- Once per month thereafter
- Each individual extraction well should be sampled once per quarter

At each monitoring event, the total system flowrate and pressure will be recorded in addition to each individual AS well's flowrate and pressure. The temperature, flow and vacuum pressure for each individual extraction well will be recorded and each SVE sample port will be field screened with a photoionization detector (PID). Should the PID show effluent concentrations are greater than 10% of the influent concentrations, the AS/SVE system will be shutdown pending receipt of analytical results.

IMPLEMENTATION SCHEDULE

Following is an estimated timeline needed to complete each task:

Job Description	Estimated Time to complete
Installing the conduit and manifold piping	Approximately 5 days
Installing the security compound and equipment placement	Approximately 5 days
Operating the AS/SVE system	Approximately 3 to 5 years, typically followed by an additional year of rebound testing
Removal of AS/SVE system	Approximately 6 to 8 years assuming typical effectiveness of the system and no additional exploratory directives from the CVRWQCB.

ESTIMATED PROJECT COSTS

Based on 2010 dollars, it is expected that capital costs for acquisition of the AS and SVE systems would be in the $75,000 to $100,000 range, and permitting and installation of the system would range from approximately $25,000 to $40,000. Typical monthly operation and maintenance costs including laboratory fees and utilities range from $2,500 to $5,000.

REPORT OF FINDINGS

An Air-Sparge and Soil Vapor Extraction System Installation Report will be prepared following installation and start-up testing of the AS/SVE system. The report will include (but not be limited to) the following:

- Project description
- Introduction
- Investigative methods
- Field observations
- Start-up testing results
- Analytical data evaluation and discussion
- Conclusions and recommendations
- Vicinity Map and Site Plans depicting the remediation and monitoring well locations
- Appendices including permits, laboratory reports, and chain-of-custody documentation.

Please contact us if you have any questions concerning this FRP or if we may be of further service.

Sincerely,

GEOCON CONSULTANTS, INC.

Josh Ewert
Senior Staff Geologist

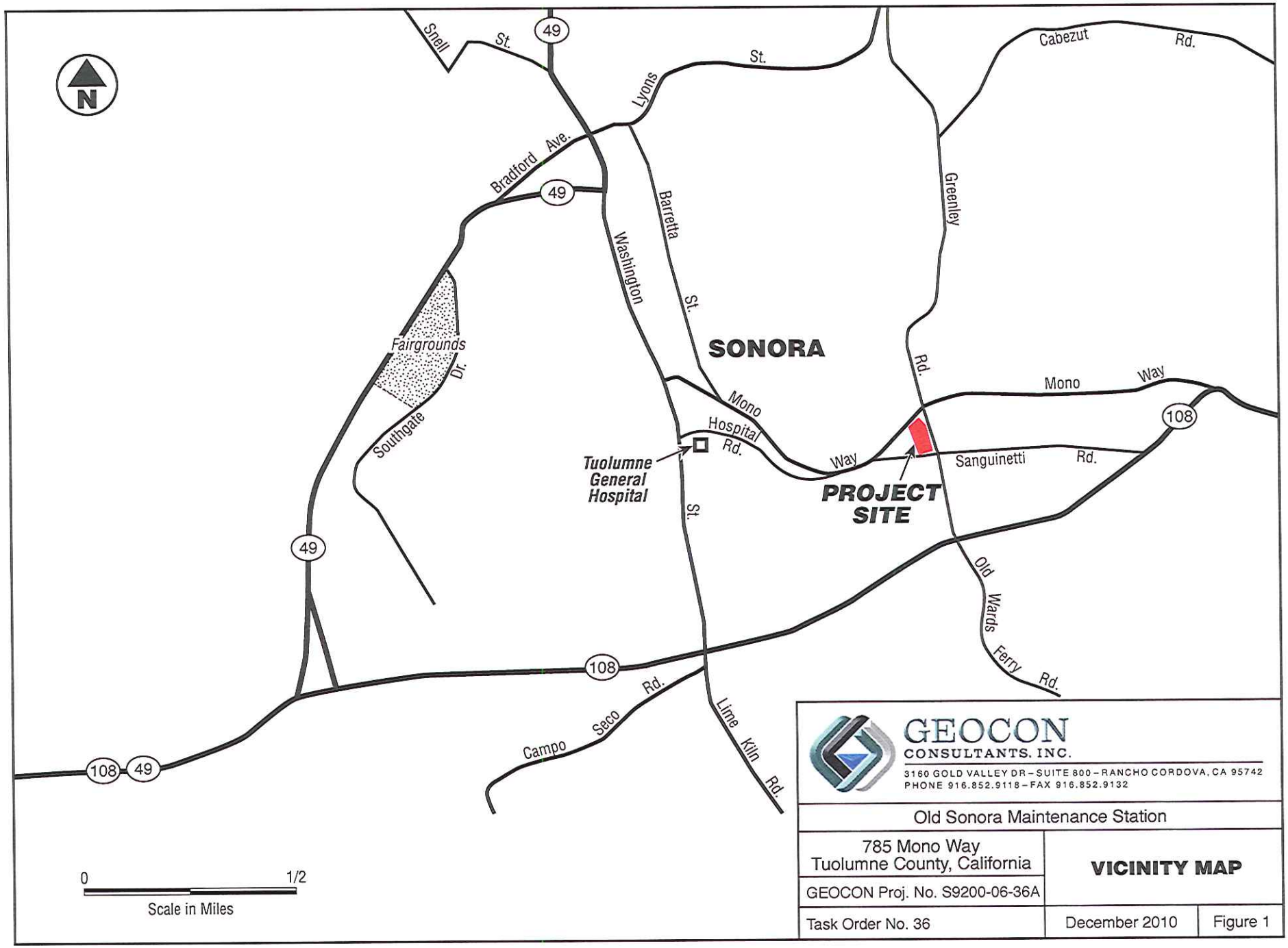
Kevin J. Brown, PG
Senior Geologist

Rebecca L. Silva, REA
Project Manager

(2) Addressee

Attachments: Figure 1, Vicinity Map
Figure 2, Site Plan
Figure 3, Cross Section A-A'
Figure 4, Cross Section B-B'
Figure 5, AS Manifold, Trench, & Well Construction Detail
Figure 6, SVE Manifold, Trench & Well Construction Detail
Figure 7, AS/SVE System Schematic
Figure 8, Proposed Remediation System Map

Table 1, Summary of Historical Groundwater Elevation and Analytical Data
Table 2, Summary of Groundwater Elevation and Analytical Data
Table 3, Summary of Groundwater Analytical Data – RNA Parameters



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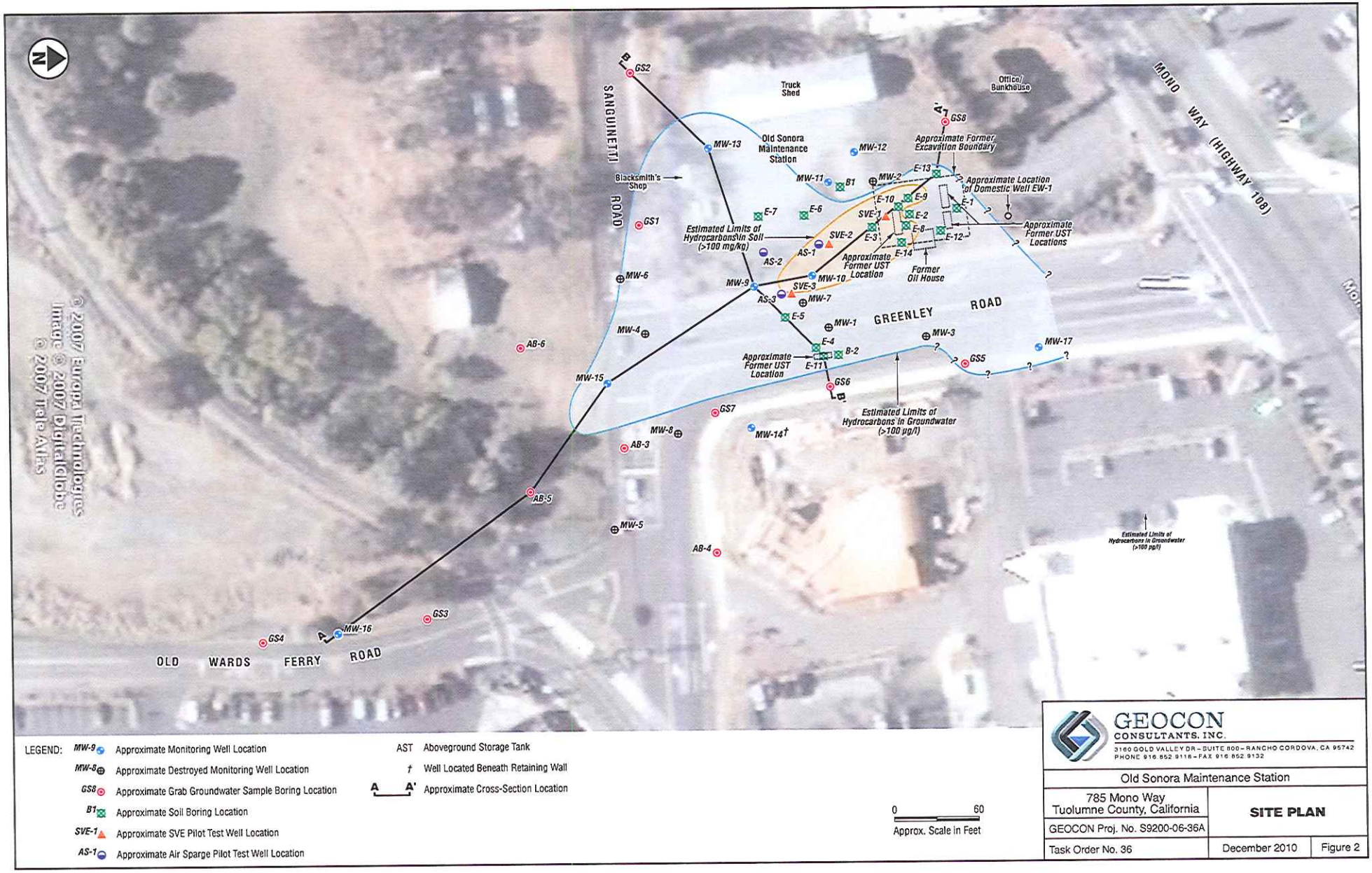
Old Sonora Maintenance Station

785 Mono Way
Tuolumne County, California

VICINITY MAP

GEOCON Proj. No. S9200-06-36A

Task Order No. 36 | December 2010 | Figure 1



LEGEND:

MW-9	Approximate Monitoring Well Location
MW-8	Approximate Destroyed Monitoring Well Location
GS8	Approximate Grab Groundwater Sample Boring Location
B1	Approximate Soil Boring Location
SVE-1	Approximate SVE Pilot Test Well Location
AS-1	Approximate Air Sparge Pilot Test Well Location
AST	Aboveground Storage Tank
†	Well Located Beneath Retaining Wall
A — A'	Approximate Cross-Section Location

0 — 60
Approx. Scale in Feet

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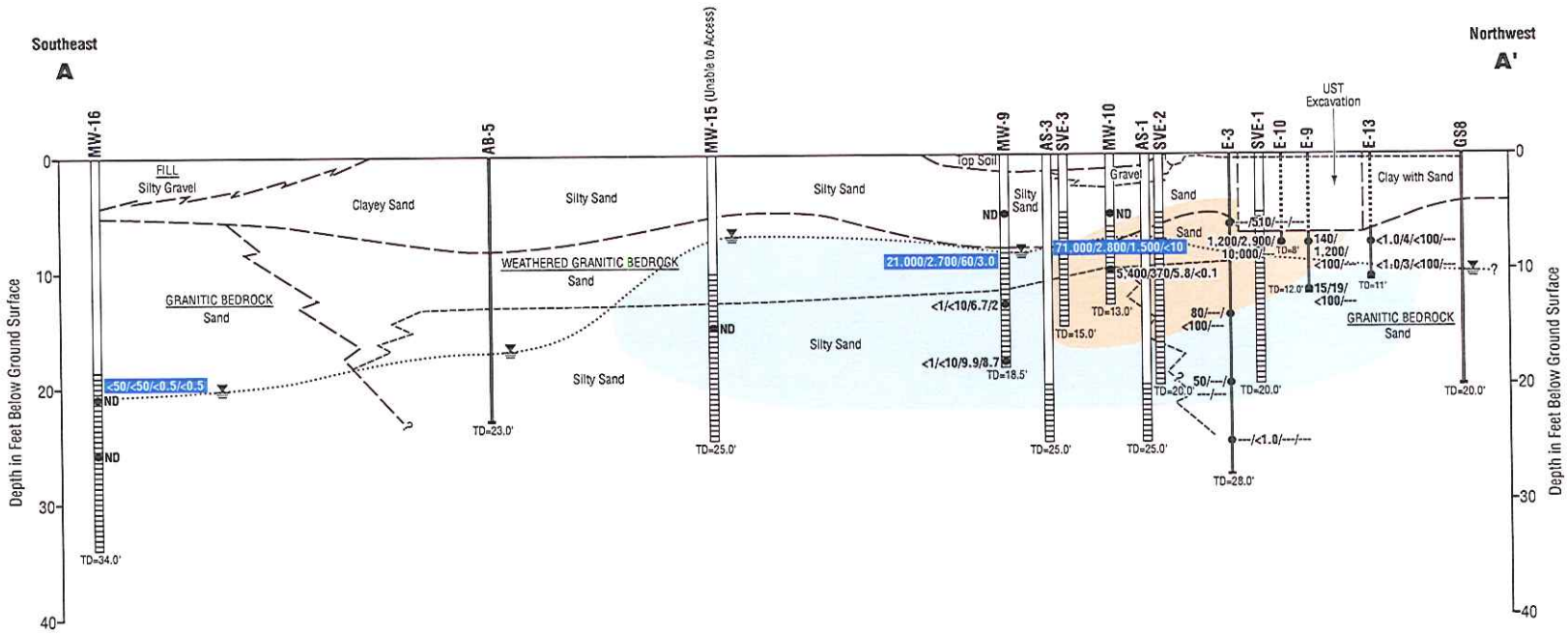
SITE PLAN

GEOCON Proj. No. S9200-06-36A

Task Order No. 36

December 2010

Figure 2



LEGEND:

MW-9 — Approximate Monitoring Well/ Soil Boring Location

Screened Interval

TD=Total Depth

Approximate Geologic Contact

Approximate Lithologic Contact

Approximate Depth to Groundwater (12/8/10)

21,000/2,700/60/3.0 — TPHg / TPHd / Benzene / MTBE Concentrations in Groundwater (µg/l) (12/8/10)

<1/<10/6.7/2 — TPHg / TPHd / Benzene / MTBE Concentrations in Soil (mg/kg) (mg/kg) (µg/kg) (µg/kg)

Estimated Limits of Hydrocarbons in Groundwater (>100 µg/l)

Estimated Limits of Hydrocarbons in Soil (>100 mg/kg)

TPHg = Total Petroleum Hydrocarbons as Gasoline
TPHd = Total Petroleum Hydrocarbons as Diesel
MTBE = Methyl tert-butyl ether
µg/l = Micrograms per Liter
mg/kg = Milligrams per Kilogram
ND = Not Detected

Vertical Scale in Feet: 0, 10
Horizontal Scale in Feet: 0, 50

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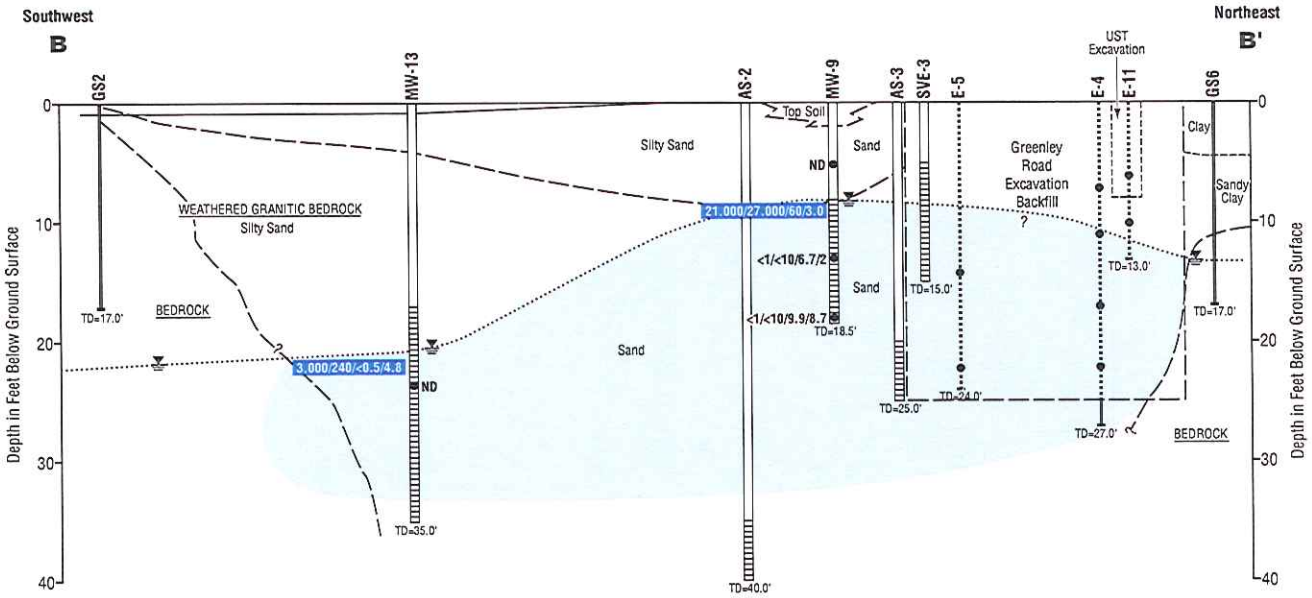
GEOCON Proj. No. S9200-06-36A

Task Order No. 36

CROSS-SECTION A – A'

December 2010

Figure 3



LEGEND:

MW-13 — Approximate Monitoring Well/ Soil Boring Location

Screened Interval

TD=Total Depth

——— Approximate Geologic Contact

-------- Approximate Lithologic Contact

·····▼····· Approximate Depth to Groundwater (12/8/10)

3,000/240/<0.5/4.8 TPHg / TPHd / Benzene / MTBE Concentrations in Groundwater (µg/l) (12/8/10)

<1/<10/9.9/8.7 ● TPHg / TPHd / Benzene / MTBE Concentrations in Soil (mg/kg) (mg/kg) (µg/kg) (µg/kg)

Estimated Limits of Hydrocarbons in Groundwater (>100 µg/l)

TPHg = Total Petroleum Hydrocarbons as Gasoline
TPHd = Total Petroleum Hydrocarbons as Diesel
MTBE = Methyl tert-butyl ether
µg/l = Micrograms per Liter
mg/kg = Milligrams per Kilogram
ND = Not Detected

Vertical Scale in Feet: 10, 0
Horizontal Scale in Feet: 0, 30

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CROSS-SECTION B – B'

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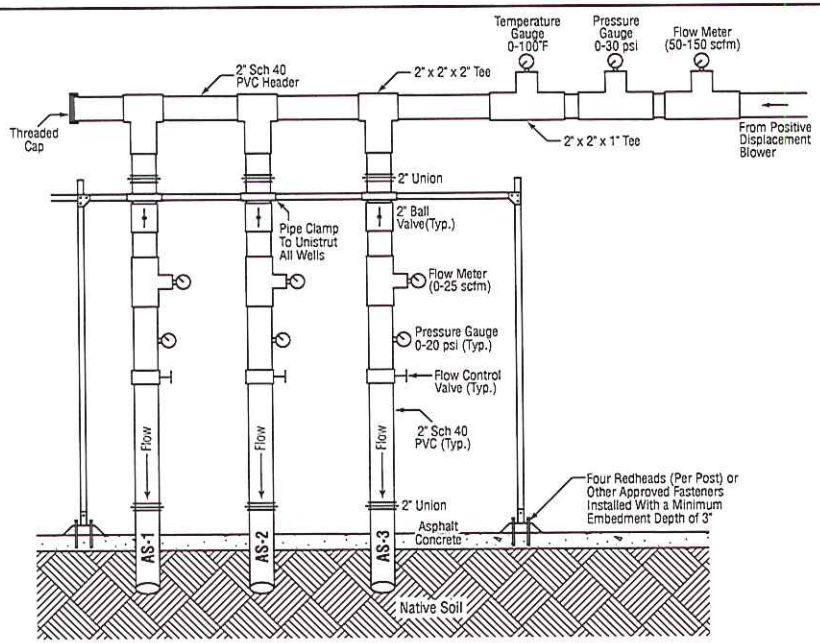
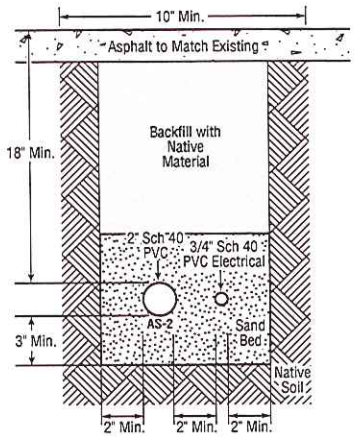
Figure 4

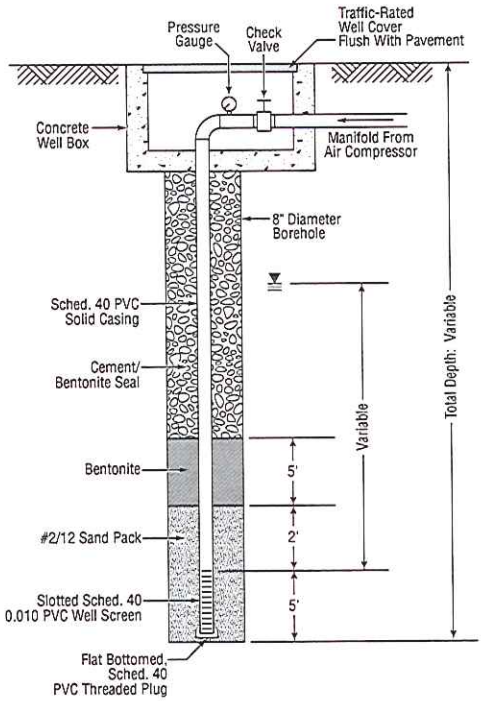


AS Manifold Detail NOT TO SCALE



1 Fig 8 **Typical AS Trench Detail**

NOT TO SCALE



Typical AS Well Construction Diagram

NOT TO SCALE

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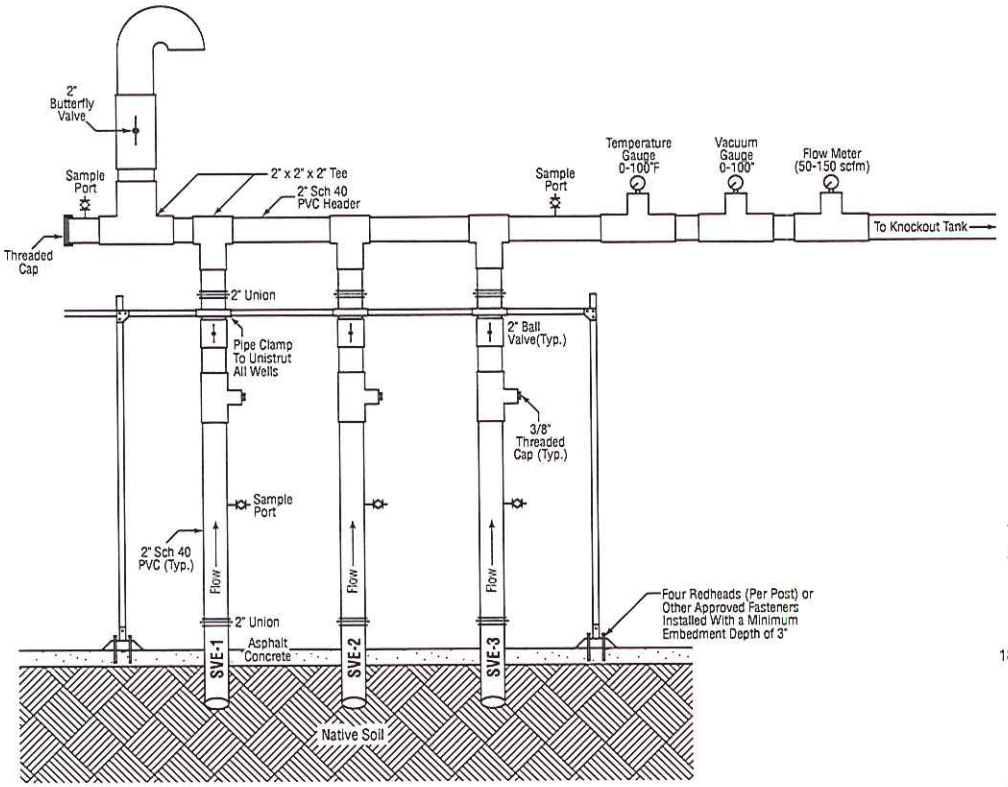
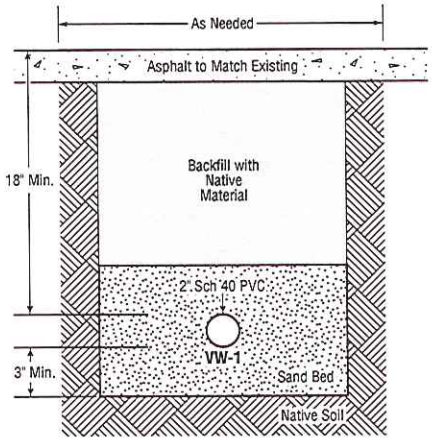
Old Sonora Maintenance Station		
785 Mono Way Tuolumne County, California	**AS Manifold, Trench & Well Construction Detail**	
GEOCON Proj. No. S9200-06-36A		
Task Order No. 36	December 2010	Figure 5



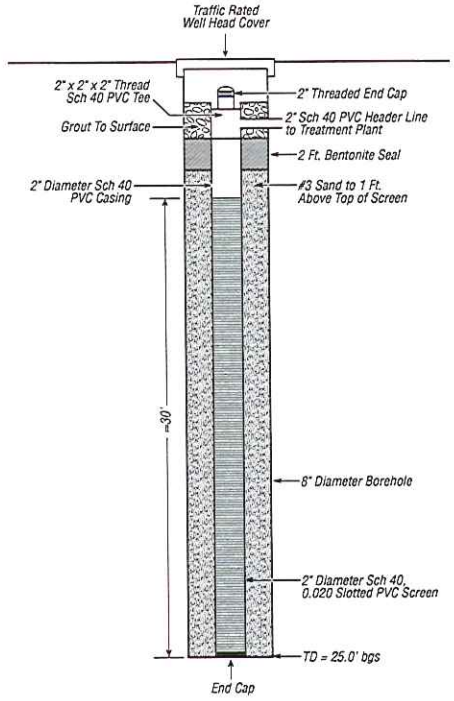
NOT TO SCALE

SVE Manifold Detail



2 Fig 8 **SVE Trench Detail**

NOT TO SCALE



Typical SVE Well Construction Detail

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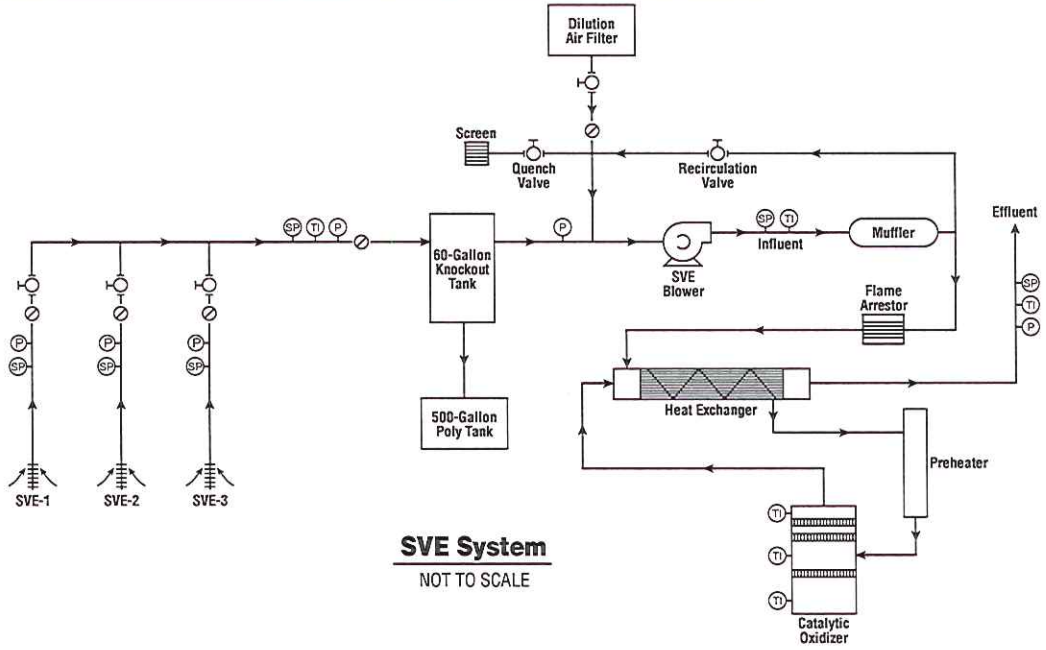
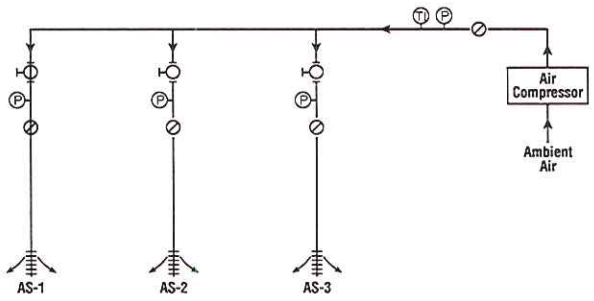
Old Sonora Maintenance Station		
785 Mono Way Tuolumne County, California	**SVE Manifold, Trench & Well Construction Detail**	
GEOCON Proj. No. S9200-06-36A		
Task Order No. 36	December 2010	Figure 6



SVE System

NOT TO SCALE



Air Sparge System

NOT TO SCALE

LEGEND:

- Pressure Gauge
- Sample Port
- Temperature Indicator
- Flow Control Valve
- Flow Meter

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Old Sonora Maintenance Station

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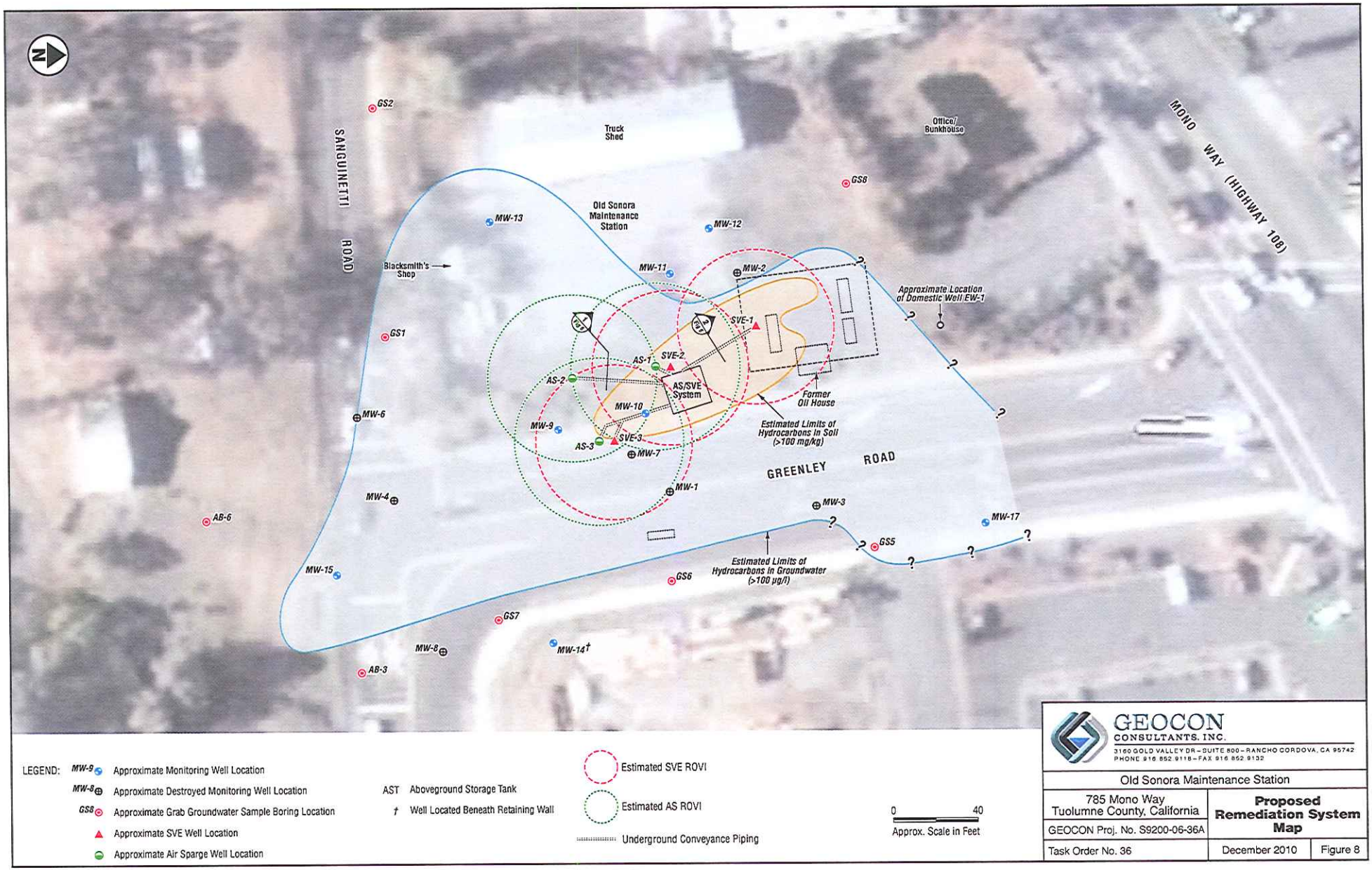
AS/SVE System Schematic

GEOCON Proj. No. S9200-06-36A

Task Order No. 36

December 2010

Figure 7



LEGEND:

- MW-9 — Approximate Monitoring Well Location
- MW-8 — Approximate Destroyed Monitoring Well Location
- GS8 — Approximate Grab Groundwater Sample Boring Location
- Approximate SVE Well Location
- Approximate Air Sparge Well Location
- AST — Aboveground Storage Tank
- † — Well Located Beneath Retaining Wall
- Estimated SVE ROVI
- Estimated AS ROVI
- Underground Conveyance Piping

0 — 40
Approx. Scale in Feet

GEOCON CONSULTANTS, INC.
3160 GOLD VALLEY DR – SUITE 800 – RANCHO CORDOVA, CA 95742
PHONE 916 852 9118 – FAX 916 852 9132

Old Sonora Maintenance Station

785 Mono Way
Tuolumne County, California

Proposed Remediation System Map

GEOCON Proj. No. S9200-06-36A

Task Order No. 36

December 2010

Figure 8

TABLE 1
SUMMARY OF HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL DATA
FORMER SONORA MAINTENANCE STATION
TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TOC ELEVATION MSL (feet)	DEPTH TO GROUND-WATER (feet)	GROUND-WATER ELEVATION MSL (feet)	TPHg (µg/l)	TRPH (µg/l)	TPHd (µg/l)	B (µg/l)	T (µg/l)	E (µg/l)	X (µg/l)	Organic Lead (µg/l)	MTBE 8020/8260 (µg/l)
MW-1	10/6/1987	1,964.97	---	---	900	---	---	5	<1.0	<1.0	<1.0	<30[1]	---
MW-1	7/1/1988	1,964.97	---	---	<1,000	3,000	---	10	<1.0	<1.0	<1.0	---	---
MW-1	6/18/1991	1,964.97	18.50	1,946.52*	---	---	---	---	---	---	---	---	---
MW-2	10/6/1987	1,967.78	16.01	1,951.77	<100	---	---	<0.7	<1.0	<1.0	<1.0	50[1]	---
MW-2	7/1/1988	1,967.78	17.79	1,949.99	<1,000	3,000	---	<0.7	<1.0	<1.0	<1.0	50[1]	---
MW-2	6/18/1991	1,967.78	17.56	1,950.22	<50	---	<50	<0.5	<0.5	<0.5	<0.5	<50	---
MW-2	4/24/1996	1,967.78	13.52	1,954.26	<50	---	80	<0.5	<0.5	<0.5	<0.5	---	---
MW-2	7/16/1996	1,967.78	14.92	1,952.86	<50	---	<50	<0.5	<0.5	<0.5	<0.5	---	---
MW-2	10/15/1996	1,967.78	16.02	1,951.76	<50	---	<50	<0.5	<0.5	<0.5	<0.5	---	3.5/---
MW-2	6/2/1997	1,967.78	14.89	1,952.89	<500	---	<0.5	<0.3	<0.3	<0.3	<0.6	---	3.8/<5
MW-2	9/2/1997	1,967.78	16.84	1,950.94	<500	---	<0.5	<0.3	<0.3	<0.3	<0.6	---	2.2/<2.5
MW-2	12/9/1997	1,967.78	17.64	1,950.14	<50	---	<5	<0.5	<0.5	<0.5	<1	---	<5/---
MW-2	3/6/1998	1,967.78	12.26	1,955.52	<50	---	<5	<0.5	<0.5	<0.5	<1	---	6/6
MW-2	5/22/1998	1,967.78	12.87	1,954.91	<500	---	<0.5	<0.3	<0.3	<0.3	<0.6	---	---/9.9
MW-2	9/1/1998	1,967.78	15.14	1,952.64	<500	---	<5	<0.3	<0.3	<0.3	<0.6	---	11/<1
MW-2	11/24/1998	1,967.78	15.24	1,952.54	<500	---	<0.4	<0.6	<1	<1	<3	---	9/13
MW-2	4/7/1999	1,967.78	13.25	1,954.53	<100	---	<0.1	<0.1	<0.2	<0.1	<0.1	---	14/---
MW-2	7/2/1999	1,967.78	14.39	1,953.39	<100	---	3	<0.3	<0.2	<0.2	<0.4	---	---/<0.6
MW-2	9/30/1999	1,967.78	15.22	1,952.56	<100	---	<0.1	<0.3	<0.2	<0.2	<0.4	---	---/<0.6
MW-2	1/12/2000	1,967.78	15.86	1,951.92	<100	---	<0.1	<0.3	<0.2	<0.2	<0.4	---	13/---
MW-2	3/31/2000	1,967.78	13.25	1,954.53	<100	---	<0.1	<0.18	<0.14	<0.18	<0.26	---	6.7/---
MW-2	6/15/2000	1,967.78	13.62	1,954.16	<100	---	<0.1	<0.3	<0.2	<0.2	<0.4	---	---/<0.6
MW-2	9/20/2000	1,967.78	14.61	1,953.17	<100	---	<0.1	<0.3	<0.2	<0.2	<0.4	---	---/<0.6
MW-2	1/2/2001	1,967.78	15.45	1,952.33	<100	---	<0.1	<0.3	<0.2	<0.2	<0.4	---	---/17
MW-2	3/26/2001	1,967.78	36.90	1,930.88	<50	---	<0.05	<0.3	<0.2	<0.2	<0.4	---	---/37
MW-2	6/11/2001	1,967.78	14.33	1,953.45	<50	---	<0.05	<0.3	<0.2	<0.2	<0.4	---	---/48
MW-2	4/3/2002	1,967.78	14.59	1,953.19	65	---	<100	<0.5	<0.5	<0.5	<0.5	---	110[2]
MW-3	10/6/1987	1,967.32	15.60	1,951.72	<100	---	---	<0.7	<1.0	<1.0	1,800	<30[1]	---
MW-3	7/1/1988	1,967.32	17.44	1,949.88	<1,000	1,000	---	<0.7	<1.0	<1.0	91	<20[1]	---
MW-3	6/18/1991	1,967.32	17.26	1,950.06	<50	---	<50	<0.5	<0.5	<0.5	30	<50	---
MW-4	7/1/1988	1,958.43	15.75	1,942.68	<1,000	3,000	---	<0.7	<1.0	<1.0	<1.0	<20[1]	---
MW-4	6/18/1991	1,958.43	16.20	1,942.23	<50	---	<50	<0.5	<0.5	<0.5	<0.5	<50	---
MW-5	6/18/1991	1,949.14	12.53	1,936.61	<50	---	<50	<0.5	<0.5	<0.5	<0.5	<50	---
MW-6	6/18/1991	1,953.36	11.48	1,941.88	<50	---	<50	<0.5	<0.5	<0.5	<0.5	<50	---

TABLE 1
SUMMARY OF HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL DATA
FORMER SONORA MAINTENANCE STATION
TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TOC ELEVATION MSL (feet)	DEPTH TO GROUND-WATER (feet)	GROUND-WATER ELEVATION MSL (feet)	TPHg (µg/l)	TRPH (µg/l)	TPHd (µg/l)	B (µg/l)	T (µg/l)	E (µg/l)	X (µg/l)	Organic Lead (µg/l)	MTBE 8020/8260 (µg/l)
MW-7	6/18/1991	1,965.39	18.33	1,947.06	26,000	---	<50	1,900	3,600	420	5,400	<50	---
MW-8	6/18/1991	1,952.62	10.58	1,942.04	<50	---	<50	<0.5	<0.5	<0.5	<0.5	<50	---
MW-8	11/1/1996	1,952.62	8.67	1,943.95	<50	---	130	<0.5	<0.5	<0.5	<0.5	---	0.6/---
MW-8	6/2/1997	1,952.62	6.85	1,945.77	<500	---	<0.5	<0.3	<0.3	<0.3	<0.6	---	<0.6/---
MW-8	9/2/1997	1,952.62	8.48	1,944.14	<500	---	<0.5	<0.3	<0.3	<0.3	<0.6	---	0.6/---
MW-8	12/9/1997	1,952.62	9.26	1,943.36	<50	---	<5	<0.5	<0.5	<0.5	<1	---	<5/---
MW-8	3/6/1998	1,952.62	3.79	1,948.83	<50	---	<5	<0.5	<0.5	<0.5	<1	---	<5/<5
MW-8	5/22/1998	1,952.62	4.20	1,948.42	<500	---	<0.5	<0.3	<0.3	<0.3	<0.6	---	---/<5
MW-8	9/1/1998	1,952.62	7.56	1,945.06	<500	---	<5	<0.3	<0.3	<0.3	<0.6	---	<0.6/<1
MW-8	11/24/1998	1,952.62	7.58	1,945.04	<500	---	<4	<0.6	<1	<1	<3	---	<1/<1
MW-8	4/7/1999	1,952.62	4.72	1,947.90	<100	---	<0.1	<0.1	<0.2	<0.1	<0.1	---	<0.6/---
MW-8	7/2/1999	1,952.62	6.25	1,946.37	<100	---	<0.1	<0.3	<0.2	<0.2	<0.4	---	---/<0.6
MW-8	9/30/1999	1,952.62	7.83	1,944.79	<100	---	<0.1	<0.3	<0.2	<0.2	<0.4	---	---/<0.6
MW-8	1/12/2000	1,952.62	8.83	1,943.79	<100	---	<0.1	<0.3	<0.2	<0.2	<0.4	---	---/<0.6
MW-8	3/31/2000	1,952.62	5.23	1,947.39	<100	---	<0.1	<0.18	<0.14	<0.18	<0.26	---	---/<0.6
MW-8	6/15/2000	1,952.62	5.75	1,946.87	<100	---	<0.1	<0.18	<0.14	<0.18	<0.26	---	---/<0.6
MW-8	9/20/2000	1,952.62	6.93	1,945.69	<100	---	<0.1	<0.18	<0.14	<0.18	<0.26	---	---/<0.6
MW-8	12/19/2000	1,952.62	7.97	1,944.65	<50	---	<50	<0.3	<0.2	<0.2	<0.4	---	---/<0.6
MW-8	3/26/2001	1,952.62	6.50	1,946.12	<50	---	<0.05	<0.3	<0.2	<0.2	<0.4	---	---/<0.6
MW-8	6/11/2001	1,952.62	7.50	1,945.12	<50	---	<0.05	<0.3	<0.2	<0.2	<0.4	---	---/<0.6

Notes: Each of the wells referenced on this table has been destroyed.
MSL = Mean sea level
TPHg = Total petroleum hydrocarbons as gasoline
TRPH = Total recoverable petroleum hydrocarbons
TPHd = Total petroleum hydrocarbons as diesel
BTEX = Benzene, toluene, ethylbenzene and total xylenes
MTBE = Methyl tert-butyl ether
8020/8260 = EPA Test Methods
µg/l = Micrograms per liter
< = Less than laboratory reporting limit
--- = Not tested/analyzed
* = Corrected groundwater elevation based on presence of 0.07 foot free-product thickness.
1 = Analyzed for total lead
2 = Includes analysis for tert-amyl methyl ether (TAME), ethyl tert-butyl ether (ETBE), di-isopropyl ether (DIPE) and tert-butanol (TBA)
MTBE = 110 µg/l, TAME = 1.8 µg/l, TBA = 38 µg/l, ETBE = <0.5 µg/l, DIPE = <0.5 µg/l

TABLE 2
SUMMARY OF GROUNDWATER ELEVATION AND ANALYTICAL DATA
FORMER SONORA MAINTENANCE STATION
TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TOP OF CASING ELEVATION (MSL)	DEPTH TO GROUNDWATER (feet)	GROUNDWATER ELEVATION (MSL)	TPHg (µg/l)	TPHd (µg/l)	BENZENE (µg/l)	TOLUENE (µg/l)	ETHYL-BENZENE (µg/l)	TOTAL XYLENES (µg/l)	MTBE 8260 (µg/l)	FOCs (µg/l)
MW-9	10/31/02	1,978.45	10.83	1,967.62	51,000	13,000	2,400	9,200	3,700	19,000	105	---
MW-9	12/30/03	1,978.45	9.41	1,969.04	55,000	23,000	710	6,700	2,400	10,000	<5	ND
MW-9	4/1/04	1,978.45	9.13	1,969.32	46,000	18,000	490	4,700	2,100	6,300	<50	ND
MW-9	5/25/04	1,978.45	9.96	1,968.49	36,800	19,900	1,080	3,640	2,420	6,300	96.0	ND
MW-9	5/17/05	1,978.45	6.94	1,971.51	23,000	<50	100	1,900	1,300	4,500	<5	---
MW-9	3/26/07	1,978.45	7.52	1,970.93	13,000	2,900	56	220	680	2,260	<5	---
MW-9	6/4/07	1,978.45	7.96	1,970.49	16,000	3,100	350	340	880	2,680	<10	---
MW-9	9/11/07	1,978.45	9.20	1,969.25	32,000	4,800	580	460	1,300	3,900	<0.5	---
MW-9	12/3/07	1,978.45	9.74	1,968.71	39,000	4,700	640	690	1,900	6,900	210	---
MW-9	4/8/08	1,978.45	7.74	1,970.71	23,000	4,600	170	80	79	310	49	---
MW-9	5/7/08	1,978.41	8.07	1,970.34	20,000	3,400	420	470	760	2,000	160	---
MW-9	8/6/08	1,978.41	9.32	1,969.09	30,000	640	600	600	1,800	3,500	110	---
MW-9	12/2/08	1,978.41	9.54	1,968.87	40,000	3,100	630	790	2,200	7,700	160	---
MW-9	2/18/09	1,978.41	6.41	1,972.00	18,000	2,000	53	260	680	2,100	<5.0	---
MW-9	5/12/09	1,978.41	7.43	1,970.98	12,000	2,600	150	65	380	1,070	29	---
MW-9	1/11/10	1,978.41	9.11	1,969.30	22,000	5,400	120	350	870	2,190	19	---
MW-9	3/15/10	1,978.41	6.46	1,971.95	16,000	1,800	32	82	470	1,450	<2.5	---
MW-9	6/17/10	1,978.41	7.37	1,971.04	15,000	2,300	120	110	410	1,080	35	---
MW-9	9/14/10	1,978.41	8.69	1,969.72	23,000	2,400	260	190	1,100	3,640	83	---
MW-10	10/31/02	1,980.53	9.07	1,971.46	140,000	54,000	4,500	11,000	1,600	10,000	39	---
MW-10	12/30/03	1,980.53	8.24	1,972.29	130,000	7,800	2,800	12,000	1,600	9,100	<5	ND
MW-10	4/1/04	1,980.53	7.60	1,972.93	73,000	23,000	2,900	11,000	1,600	9,400	<50	ND
MW-10	5/25/04	1,980.53	8.29	1,972.24	65,100	31,600	3,940	13,200	1,910	10,900	45.8	ND
MW-10	5/17/05	1,980.53	5.80	1,974.73	33,000	<50	750	2,800	840	4,500	<5	---
MW-10	3/26/07	1,980.53	6.12	1,974.41	51,000	3,700	1,900	5,900	1,300	7,400	<10	---
MW-10	6/4/07	1,980.53	6.37	1,974.16	48,000	5,000	2,500	7,400	1,900	9,800	<10	---
MW-10	9/11/07	1,980.53	7.73	1,972.80	44,000	6,800	1,400	2,500	1,500	8,400	<0.5	---
MW-10	12/3/07	1,980.53	8.26	1,972.27	52,000	6,200	3,100	4,900	1,500	9,500	33	---
MW-10	4/8/08	1,980.53	6.19	1,974.34	62,000	11,000	3,000	5,300	2,300	11,100	<5.0	---
MW-10	5/7/08	1,980.53	6.54	1,973.99	62,000	8,100	580	1,300	520	2,610	34	---
MW-10	8/6/08	1,980.53	7.77	1,972.76	51,000	1,800	2,800	5,300	2,300	10,300	42	---
MW-10	12/2/08	1,980.53	8.04	1,972.49	58,000	3,900	2,300	4,300	2,200	11,600	30	---
MW-10	2/18/09	1,980.53	6.21	1,974.32	63,000	2,800	3,300	7,500	2,500	12,500	37	---
MW-10	5/12/09	1,980.53	6.14	1,974.39	61,000	3,600	1,800	4,600	2,200	10,400	19	---
MW-10	1/11/10	1,980.53	7.72	1,972.81	58,000	930	1,700	3,900	3,000	14,900	<5.0	---
MW-10	3/15/10	1,980.53	5.56	1,974.97	66,000	2,800	1,800	7,200	3,300	15,100	<10	---
MW-10	6/17/10	1,980.53	6.00	1,974.53	63,000	3,300	1,900	4,800	2,800	12,500	<10	---
MW-10	9/14/10	1,980.53	7.26	1,973.27	47,000	3,100	1,700	4,300	3,000	13,300	17	---
MW-11	10/31/02	1,990.70	18.88	1,971.82	2,200	1,000	5.1	3.8	3.6	9.4	120	---
MW-11	12/30/03	1,990.70	18.19	1,972.51	270	<50	1.6	<0.5	<0.5	<0.5	170	ND
MW-11	4/1/04	1,990.70	17.52	1,973.18	120	<50	<0.5	0.7	<0.5	0.9	150	ND

TABLE 2
SUMMARY OF GROUNDWATER ELEVATION AND ANALYTICAL DATA
FORMER SONORA MAINTENANCE STATION
TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TOP OF CASING ELEVATION (MSL)	DEPTH TO GROUNDWATER (feet)	GROUNDWATER ELEVATION (MSL)	TPHg (µg/l)	TPHd (µg/l)	BENZENE (µg/l)	TOLUENE (µg/l)	ETHYL-BENZENE (µg/l)	TOTAL XYLENES (µg/l)	MTBE 8260 (µg/l)	FOCs (µg/l)
MW-11	5/25/04	1,990.70	18.21	1,972.49	95.9	<50	<0.5	<0.5	<0.5	<0.5	125	ND
MW-11	5/17/05	1,990.70	15.72	1,974.98	300	<50	<2.0	<2.0	<2.0	<2.0	85	---
MW-11	3/26/07	1,990.70	16.15	1,974.55	85	<50	<0.5	<0.5	<0.5	<1.0	30	---
MW-11	6/4/07	1,990.70	16.48	1,974.22	76	<50	<0.5	<0.5	<0.5	<1.0	41	---
MW-11	9/11/07	1,990.70	17.76	1,972.94	71	<50	<0.5	<0.5	<0.5	<1.0	31	---
MW-11	12/3/07	1,990.70	18.24	1,972.46	200	<50	<0.5	<0.5	<0.5	<1.0	44	---
MW-11	4/8/08	1,990.70	16.26	1,974.44	58	<50	<0.5	<0.5	<0.5	<1.0	44	---
MW-11	5/7/08	1,990.72	16.64	1,974.08	63	73	<0.5	<0.5	<0.5	<1.0	45	---
MW-11	8/6/08	1,990.72	17.77	1,972.95	100	<50	<0.5	<0.5	<0.5	<1.0	29	---
MW-11	12/2/08	1,990.72	17.98	1,972.74	75	56	<0.5	<0.5	<0.5	<1.0	35	---
MW-11	2/18/09	1,990.72	16.09	1,974.63	68	<50	<0.5	<0.5	<0.5	<1.0	25	---
MW-11	5/12/09	1,990.72	16.07	1,974.65	55	<50	<0.5	<0.5	<0.5	<1.0	9.5	---
MW-11	1/12/10	1,990.72	17.64	1,973.08	<50	80	<0.5	<0.5	<0.5	<1.0	17	---
MW-11	3/16/10	1,990.72	15.45	1,975.27	<50	<50	<0.5	<0.5	<0.5	<1.0	15	---
MW-11	6/17/10	1,990.72	15.97	1,974.75	140	<50	<0.5	<0.5	<0.5	<1.0	11	---
MW-11	9/14/10	1,990.72	17.28	1,973.44	120	<50	<0.5	<0.5	<0.5	<1.0	12	---
MW-12	10/31/02	1,991.35	16.93	1,974.42	100	<50	<0.5	<0.5	<0.5	<0.5	110	---
MW-12	12/30/03	1,991.35	16.24	1,975.11	60	<50	<0.5	<0.5	<0.5	<0.5	150	ND
MW-12	4/1/04	1,991.35	15.70	1,975.65	93	<50	<0.5	<0.5	<0.5	0.6	110	ND
MW-12	5/25/04	1,991.35	16.37	1,974.98	80.2	<50	<0.5	2.1	<0.5	3.0	99.9	ND
MW-12	5/17/05	1,991.35	14.04	1,977.31	100	<50	<2.0	<2.0	<2.0	<2.0	60	---
MW-12	3/26/07	1,991.35	14.55	1,976.80	<50	<50	<0.5	<0.5	<0.5	<1.0	14	---
MW-12	6/4/07	1,991.35	14.84	1,976.51	71	<50	<0.5	<0.5	<0.5	<1.0	40	---
MW-12	9/11/07	1,991.35	16.09	1,975.26	61	<50	<0.5	<0.5	<0.5	<1.0	21	---
MW-12	12/3/07	1,991.35	16.52	1,974.83	220	<50	<0.5	<0.5	<0.5	<1.0	25	---
MW-12	4/8/08	1,991.35	14.57	1,976.78	<50	<50	<0.5	<0.5	<0.5	<1.0	25	---
MW-12	5/7/08	1,991.32	15.02	1,976.30	57	68	<0.5	<0.5	<0.5	<1.0	36	---
MW-12	8/6/08	1,991.32	15.97	1,975.35	150	<50	<0.5	<0.5	<0.5	<1.0	16	---
MW-12	12/2/08	1,991.32	16.10	1,975.22	<50	55	<0.5	<0.5	<0.5	<1.0	5.3	---
MW-12	2/18/09	1,991.32	13.98	1,977.34	<50	<50	<0.5	<0.5	<0.5	<1.0	2.0	---
MW-12	5/12/09	1,991.32	14.28	1,977.04	<50	<50	<0.5	<0.5	<0.5	<1.0	5.5	---
MW-12	1/12/10	1,991.32	15.81	1,975.51	<50	<50	<0.5	<0.5	<0.5	<1.0	5.2	---
MW-12	3/16/10	1,991.32	13.71	1,977.61	<50	<50	<0.5	<0.5	<0.5	<1.0	4.5	---
MW-12	6/17/10	1,991.32	14.27	1,977.05	170	<50	<0.5	<0.5	<0.5	<1.0	8.7	---
MW-12	9/14/10	1,991.32	15.29	1,976.03	110	<50	<0.5	<0.5	<0.5	<1.0	5.9	---
MW-13	12/30/03	1,991.29	22.39	1,968.90	1,200	500	9.1	1.3	2.7	17	8.7	ND
MW-13	4/1/04	1,991.29	21.70	1,969.59	1,900	830	<0.5	1.9	46	11	13	ND
MW-13	5/25/04	1,991.29	22.48	1,968.81	2,590	1,250	9.1	2.7	77.1	34.3	7.9	ND
MW-13	5/17/05	1,991.29	19.96	1,971.33	4,600	<50	<20	<20	120	130	<5	---
MW-13	3/26/07	1,991.29	20.34	1,970.95	2,700	530	1.6	0.55	52	12.4	<0.5	---
MW-13	6/4/07	1,991.29	20.79	1,970.50	3,700	640	2.4	<0.5	65	21.0	<0.5	---

TABLE 2
SUMMARY OF GROUNDWATER ELEVATION AND ANALYTICAL DATA
FORMER SONORA MAINTENANCE STATION
TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TOP OF CASING ELEVATION (MSL)	DEPTH TO GROUNDWATER (feet)	GROUNDWATER ELEVATION (MSL)	TPHg (µg/l)	TPHd (µg/l)	BENZENE (µg/l)	TOLUENE (µg/l)	ETHYL-BENZENE (µg/l)	TOTAL XYLENES (µg/l)	MTBE 8260 (µg/l)	FOCs (µg/l)
MW-13	9/11/07	1,991.29	22.02	1,969.27	4,200	1,400	2.0	<0.5	63	19.9	<0.5	---
MW-13	12/3/07	1,991.29	22.43	1,968.86	3,000	630	0.78	<0.5	45	12.6	11	---
MW-13	4/8/08	1,991.29	20.55	1,970.74	4,500	840	6.4	<0.5	55	27	9.8	---
MW-13	5/7/08	1,991.29	20.95	1,970.34	5,800	1,000	7.4	0.61	58	34.2	9.0	---
MW-13	8/6/08	1,991.29	22.06	1,969.23	5,500	270	2.1	<0.5	51	22.5	<0.5	---
MW-13	12/2/08	1,991.29	22.18	1,969.11	3,500	1,100	0.61	<0.5	47	9.8	5.5	---
MW-13	2/18/09	1,991.29	19.94	1,971.35	1,600	370	1.9	1.3	22	4.8	6.2	---
MW-13	5/12/09	1,991.29	20.25	1,971.04	5,300	1,300	1.1	<0.5	42	22.3	3.5	---
MW-13	1/12/10	1,991.29	21.82	1,969.47	3,900	<50	1.1	<0.5	50	9.6	3.9	---
MW-13	3/16/10	1,991.29	19.44	1,971.85	3,200	350	0.79	<0.5	34	5.5	4.5	---
MW-13	6/17/10	1,991.29	20.21	1,971.08	5,800	960	2.8	<0.5	35	17.8	5.2	---
MW-13	9/14/10	1,991.29	21.55	1,969.74	5,600	1,100	1.1	<0.5	39	9.9	5.0	---
MW-14	12/30/03	1,977.84	9.81	1,968.03	<50	<50	<0.5	<0.5	<0.5	<0.5	22	ND
MW-14	4/1/04	1,977.84	9.20	1,968.64	<50	<50	<0.5	<0.5	<0.5	<0.5	53	ND
MW-14	5/25/04	1,977.84	9.99	1,967.85	54.7	<50	<0.5	<0.5	<0.5	<0.5	117	ND
MW-14	5/17/05	1,977.84	Not accessible since 2005		---	---	---	---	---	---	---	---
MW-15	12/30/03	1,974.69	7.59	1,967.10	63	260	<0.5	<0.5	<0.5	<0.5	120	ND
MW-15	4/1/04	1,974.69	7.26	1,967.43	140	<50	<0.5	<0.5	<0.5	<0.5	320	ND
MW-15	5/25/04	1,974.69	8.03	1,966.66	96.8	<50	<0.5	<0.5	<0.5	<0.5	286	ND
MW-15	5/17/05	1,974.69	5.44	1,969.25	500	<50	<2.0	<2.0	<2.0	<2.0	650	---
MW-15	3/26/07	1,974.69	5.78	1,968.91	550	<50	<0.5	<0.5	<0.5	<1.0	360	---
MW-15	6/4/07	1,974.69	6.22	1,968.47	500	<50	<0.5	<0.5	<0.5	<1.0	510	---
MW-15	9/11/07	1,974.69	7.24	1,967.45	370	56	<0.5	<0.5	<0.5	<1.0	280	---
MW-15	12/3/07	1,974.69	7.82	1,966.87	470	<50	<0.5	<0.5	<0.5	<1.0	330	---
MW-15	4/8/08	1,974.69	5.96	1,968.73	210	74	<0.5	<0.5	<0.5	<1.0	320	---
MW-15	5/7/08	1,974.70	6.30	1,968.40	240	91	<0.5	<0.5	<0.5	<1.0	330	---
MW-15	8/6/08	1,974.70	7.39	1,967.31	210	<50	<0.5	<0.5	<0.5	<1.0	200	---
MW-15	12/2/08	1,974.70	7.60	1,967.10	170	130	<0.5	<0.5	<0.5	<1.0	220	---
MW-15	2/18/09	1,974.70	4.96	1,969.74	120	69	<0.5	<0.5	<0.5	<1.0	110	---
MW-15	5/12/09	1,974.70	5.68	1,969.02	240	60	<0.5	<0.5	<0.5	<1.0	170	---
MW-15	1/12/10	1,974.70	7.26	1,967.44	160	<50	<0.5	<0.5	<0.5	<1.0	200	---
MW-15	3/16/10	1,974.70	4.95	1,969.75	220	<50	<0.5	<0.5	<0.5	<1.0	220	---
MW-15	6/17/10	1,974.70	5.74	1,968.96	320	<50	3.7	<0.5	<0.5	<1.0	270	---
MW-15	9/14/10	1,974.70	Located in the intersection of Greenley and Sanguinetti – Unable to access.									
MW-16	5/7/08	1,978.19	19.33	1,958.86	55	250	<0.5	<0.5	<0.5	<1.0	<0.5	---
MW-16	8/6/08	1,978.19	21.32	1,956.87	<50	<50	<0.5	<0.5	<0.5	<1.0	<0.5	---
MW-16	12/2/08	1,978.19	21.66	1,956.53	<50	61	<0.5	<0.5	<0.5	<1.0	<0.5	---
MW-16	2/18/09	1,978.19	18.69	1,959.50	<50	<50	<0.5	<0.5	<0.5	<1.0	<0.5	---
MW-16	5/12/09	1,978.19	18.70	1,959.49	<50	91	<0.5	<0.5	<0.5	<1.0	<0.5	---
MW-16	1/12/10	1,978.19	20.62	1,957.57	<50	<50	<0.5	<0.5	<0.5	<1.0	<0.5	---

TABLE 2
SUMMARY OF GROUNDWATER ELEVATION AND ANALYTICAL DATA
FORMER SONORA MAINTENANCE STATION
TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TOP OF CASING ELEVATION (MSL)	DEPTH TO GROUNDWATER (feet)	GROUNDWATER ELEVATION (MSL)	TPHg (µg/l)	TPHd (µg/l)	BENZENE (µg/l)	TOLUENE (µg/l)	ETHYL-BENZENE (µg/l)	TOTAL XYLENES (µg/l)	MTBE 8260 (µg/l)	FOCs (µg/l)
MW-16	3/16/10	1,978.19	17.66	1,960.53	<50	<50	<0.5	<0.5	<0.5	<1.0	<0.5	---
MW-16	6/17/10	1,978.19	18.31	1,959.88	<50	130	<0.5	<0.5	<0.5	<1.0	<0.5	---
MW-16	9/14/10	1,978.19	20.44	1,957.75	<50	76	<0.5	<0.5	<0.5	<1.0	<0.5	---
MW-17	5/7/08	1,988.15	9.23	1,978.92	130	92	<0.5	<0.5	<0.5	<1.0	110	---
MW-17	8/6/08	1,988.15	10.19	1,977.96	180	<50	<0.5	<0.5	<0.5	<1.0	160	---
MW-17	12/2/08	1,988.15	10.65	1,977.50	140	74	<0.5	<0.5	<0.5	<1.0	150	---
MW-17	2/18/09	1,988.15	8.79	1,979.36	140	60	<0.5	<0.5	<0.5	<1.0	170	---
MW-17	5/12/09	1,988.15	8.66	1,979.49	180	<50	<0.5	<0.5	<0.5	<1.0	97	---
MW-17	1/12/10	1,988.15	10.15	1,978.00	160	<50	<0.5	<0.5	<0.5	<1.0	190	---
MW-17	3/16/10	1,988.15	8.13	1,980.02	160	<50	<0.5	<0.5	<0.5	<1.0	170	---
MW-17	6/17/10	1,988.15	8.38	1,979.77	<50	97	<0.5	<0.5	<0.5	<1.0	44	---
MW-17	9/14/10	1,988.15	9.67	1,978.48	230	55	<0.5	<0.5	<0.5	<1.0	150	---

Notes:
MSL = Mean sea level
TPHg = Total petroleum hydrocarbons as gasoline
TPHd = Total petroleum hydrocarbons as diesel
MTBE = Methyl tert-butyl ether
FOCs = Fuel oxygenate compounds including di-isopropyl ether, tert-amyl methyl ether, ethyl tert-butyl ether and tert-butanol
µg/l = Micrograms per liter
<, ND = Less than laboratory reporting limit
--- = Not tested

TABLE 3
SUMMARY OF GROUNDWATER ANALYTICAL DATA – RNA PARAMETERS
FORMER SONORA MAINTENANCE STATION
TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	SULFATE (mg/l)	NITRATE (mg/l)	DISSOLVED IRON (µg/l)	DISSOLVED MANGANESE (µg/l)	METHANE (µg/l)	DISSOLVED OXYGEN (mg/l)	ORP (mV)	pH
MW-9	3/26/07	1.6	0.16	240	4,500	13	0.02	24	6.71
MW-9	6/4/07	<1.0	<0.10	250	8,200	32	0.03	20	6.45
MW-9	9/11/07	1.8	<0.10	550	7,100	96	0.03	17	6.39
MW-9	12/3/07	<50	<5.0	10,000	9,800	220	0.05	28	6.31
MW-9	4/8/08	<1.0	<0.10	390	7,300	35	0.10	44	6.87
MW-9	5/7/08	<1.0	<0.10	140	7,300	42	0.16	46	6.92
MW-10	3/26/07	<1.0	<0.10	4,100	2,700	380	0.02	36	6.65
MW-10	6/4/07	<1.0	<0.10	8,400	6,000	460	0.02	41	6.37
MW-10	9/11/07	1.6	<0.10	8,400	6,300	500	0.02	16	6.41
MW-10	12/3/07	<50	<5.0	12,000	7,900	1,100	0.03	15	6.31
MW-10	4/8/08	<1.0	<0.10	4,300	7,300	790	0.10	50	6.77
MW-10	5/7/08	<1.0	<0.10	3,000	7,200	730	0.07	25	6.81
MW-11	3/26/07	28	0.84	<200	<200	1.7	1.02	29	6.55
MW-11	6/4/07	24.5	0.69	62	79	<1.0	0.12	251	6.52
MW-11	9/11/07	30	0.57	69	43	<1.0	0.07	189	6.76
MW-11	12/3/07	25	0.54	1,400	130	<1.0	0.12	201	6.55
MW-11	4/8/08	23	0.61	<10	79	<1.0	0.22	101	6.77
MW-11	5/7/08	30	0.65	110	39	<1.0	0.12	152	6.55
MW-12	3/26/07	31	1.3	260	250	2.8	1.07	30	6.75
MW-12	6/4/07	27.9	1.25	64	160	2.3	0.15	240	6.90
MW-12	9/11/07	36	1.2	65	210	3.8	0.07	215	6.63
MW-12	12/3/07	27	1.1	400	420	6.6	0.17	207	6.56
MW-12	4/8/08	24	1.0	<10	180	3.9	0.53	113	6.82
MW-12	5/7/08	31	1.3	110	190	<1.0	0.12	161	6.66
MW-13	3/26/07	1.5	<0.10	<100	7,100	38	1.72	—	6.87
MW-13	6/4/07	<1.0	<0.10	210	8,200	36	0.16	152	6.54
MW-13	9/11/07	3.3	<0.10	130	7,000	47	0.04	13	6.53
MW-13	12/3/07	<50	<5.0	3,000	7,900	74	0.07	21	6.62
MW-13	4/8/08	<1.0	<0.10	150	7,500	74	0.18	10	6.87
MW-13	5/7/08	<1.0	<0.10	180	8,400	65	0.07	42	6.50
MW-15	3/26/07	26	1.4	79	<50	6.0	0.28	30	6.58
MW-15	6/4/07	23.7	1.24	73	<10	3.9	0.22	171	6.36
MW-15	9/11/07	25	0.80	61	<10	1.2	0.13	191	6.36
MW-15	12/3/07	21	0.72	120	<10	<1.0	0.18	176	6.43
MW-15	4/8/08	28	0.90	<10	<10	1.6	0.37	67	6.88
MW-15	5/7/08	35	1.1	140	<10	<1.0	0.50	189	6.50

Notes: ORP = Oxidation Reduction Potential
RNA = Remediation by natural attenuation
mg/l = Milligrams per liter
µg/l = Micrograms per liter
mV = Millivolts
< = Less than laboratory reporting limit
--- = Not measured

BORING LOG

BORING NO. E5 (soils exploration) T. Lamb 10/3/87

DEPTH FEET	SOIL CLASSIFICATION SYMBOL	SAMPLE/TEST NUMBER	SOIL DESCRIPTION		OVM READINGS/COMMENTS
2			Red brown, dry, medium dense damp	Very silty fine to medium sand (SM)	2 in. A.C. pavement
4			brown, dense, damp	Silty fine to coarse sand (SM)	Weathered granitic rock
6					300 PPM
8					900 PPM
10					
12					
14		E5-14.0			600 PPM
16					
18					
20					
22		E5-22.0	Moist		600 PPM
24			Bottom of hole 24 ft.		
26					
28					
30					
32					
34					
36					
38					
40					

PROJECT NO.
Maint. Station
TC03H.7

APPLIED HYDROGEOLOGIC consultants

BORING LOG

BORING NO. E6 (soils exploration) T. Lamb 10/3/87

DEPTH FEET	SOIL CLASSIFICATION SYMBOL	SAMPLE/TEST NUMBER	SOIL DESCRIPTION		OVM READINGS/COMMENTS
2			Brown, damp, medium dense	Silty fine to coarse sand (SM)	2 in. A.C. pavement
6			Gray brown, damp, dense	Fine to very coarse sand (SW)	Weathered granitic rock
12		E6-12.5	Brown, damp, dense		2750 PPM
20					900 PPM
24		E6-25.0	Moist		
26			Bottom of hole 27 ft.		
28					
30					
32					
34					
36					
38					
40					

PROJECT NO.
Maint. Station
TC03H.7

APPLIED HYDROGEOLOGIC consultants

BORING LOG

BORING NO. E7 (soils exploration) T. Lamb 10/3/87

DEPTH FEET	SOIL CLASSIFICATION SYMBOL	SAMPLE/TEST NUMBER	SOIL DESCRIPTION		OVM READINGS/COMMENTS
2			Brown, damp, medium dense	Silty fine to very coarse sand (SM)	2 in. A.C. pavement
4					Weathered granitic rock
6			Light brown, dense		
8					
10			Very dense		
12			Gray, dry, very dense	Unweathered granitic rock (granodiorite)	
14					
16					
18			Bottom of hole 18 ft.		
20					
22					
24					
26					
28					
30					
32					
34					
36					
38					
40					

PROJECT NO.
Maint. Station
TC03H.7

APPLIED HYDROGEOLOGIC consultants

BORING LOG

BORING NO. E8

Tom Lamb 6/29/88

DEPTH FEET	SOIL CLASSIFICATION SYMBOL	SAMPLE/TEST NUMBER	SOIL DESCRIPTION		OVM READINGS/COMMENTS
0–6			Light Brown, dry, loose	Silty fine to medium sand (SW)	
6–12		E8 D9	Medium dense	Fine to coarse sand (SW)	10,000 ppm Probable bottom of old tank excavation at 12 feet.
12–14			Very dense	Fine to coarse sand (SW) (disentegrated granitic rock)	10,000 ppm
14–15		E8 D15	Bottom of Boring 15 feet (refusal on granitic rock)		

PROJECT NO. TC03H.8

APPLIED HYDROGEOLOGIC consultants

BORING LOG

BORING NO. E9

Tom lamb 6/29/88

DEPTH FEET	SOIL CLASSIFICATION SYMBOL	SAMPLE/TEST NUMBER	SOIL DESCRIPTION	OVM READINGS/COMMENTS
2			Brown, dry, loose Silty to fine to coarse sand (SM)	
4			damp	
6				Probable bottom of old excavation at 7 feet
8		E9 D8	Gray, brown, dense, damp Fine to very coarse sand (SW) (disintegrated granite rock)	1000 ppm
10				
12		E9 D12	Gray, very dense	600 ppm
14			Bottom of boring, 12' (refusal on granitic rock)	
16				
18				
20				

PROJECT NO. TCO3H.8

APPLIED HYDROGEOLOGIC

BORING LOG

BORING NO. E10

Tom Lamb 6/29/88

DEPTH FEET	SOIL CLASSIFICATION SYMBOL	SAMPLE/TEST NUMBER	SOIL DESCRIPTION		OVM READINGS/COMMENTS
2			Brown, dry, loose	Silty to fine sand (SM) (Disintegrated granitic rock)	
4			Damp		1000 ppm
6					probable bottom of old excavation at 7 feet
8		E10	Gray, dense		3000 ppm
		D 8			
10			Bottom of Boring, 8 feet (refusal on granitic rock)		
12					
14					
16					
18					
20					

PROJECT NO.
TC03H.8

APPLIED HYDROGEOLOGIC

BORING LOG

BORING NO. E11 (Kerosene tank) Tom Lamb 6/29/88

DEPTH FEET	SOIL CLASSIFICATION SYMBOL	SAMPLE/TEST NUMBER	SOIL DESCRIPTION		OVM READINGS/COMMENTS
0			Dark brown, damp loose	Silty fine to coarse sand (SM)	
2			Medium dense		
4					
6		E11 D6			100 ppm Probable bottom of old excavation at 8 Feet
8			Grey, Damp, dense	Fine to very coarse sand (SW) (disintegrated Granite Rock)	
10		E11 D10			1000 ppm
12			Very dense		
14			Bottom boring 13 feet (Refusal on Granitic rock)		
16					
18					
20					

PROJECT NO. TC03H.8
MAINTANANCE STATION

APPLIED HYDROGEOLOGIC consultants

BORING LOG

BORING NO. E12

Tom Lamb 6/29/8

DEPTH FEET	SOIL CLASSIFICATION SYMBOL	SAMPLE/TEST NUMBER	SOIL DESCRIPTION		OVM READINGS/COMMENTS
2			Brown, Dry, loose	Silty fine to coarse sand (SM)	
4			Damp		
6					Probable Bottom of old excavation at 7 feet
8		E12 D 8	Grey, Damp, very dense	Fine to very coarse sand (SW) (Disintegrated granitic rock)	200 ppm
10			Bottom of Boring 9 feet (Refusal on Grnitic rock)		
12					
14					
16					
18					
20					

PROJECT NO.
TCO3H.8
MAINTANANCE STATION

APPLIED HYDROGEOLOGIC consultants

BORING LOG

BORING NO. E13 — Tom Lamb 6/29/88

DEPTH FEET	SOIL CLASSIFICATION SYMBOL	SAMPLE/TEST NUMBER	SOIL DESCRIPTION		OVM READINGS/COMMENTS
0–2			Brown, Dry loose.	Silty fine to coarse sand (SM)	
2–4			Damp, medium dense		
4–6			Light brown, damp, dense	Fine to very coarse sand (SW) (disintegrated granitic rock)	
8		E13 D8			0 ppm
10		E13 D11			0 ppm
11			Bottom of boring 11 feet (refusal on granitic rock)		

PROJECT NO. TC03H.8
MAINTANANCE STATION

APPLIED HYDROGEOLOGIC consultants

BORING LOG

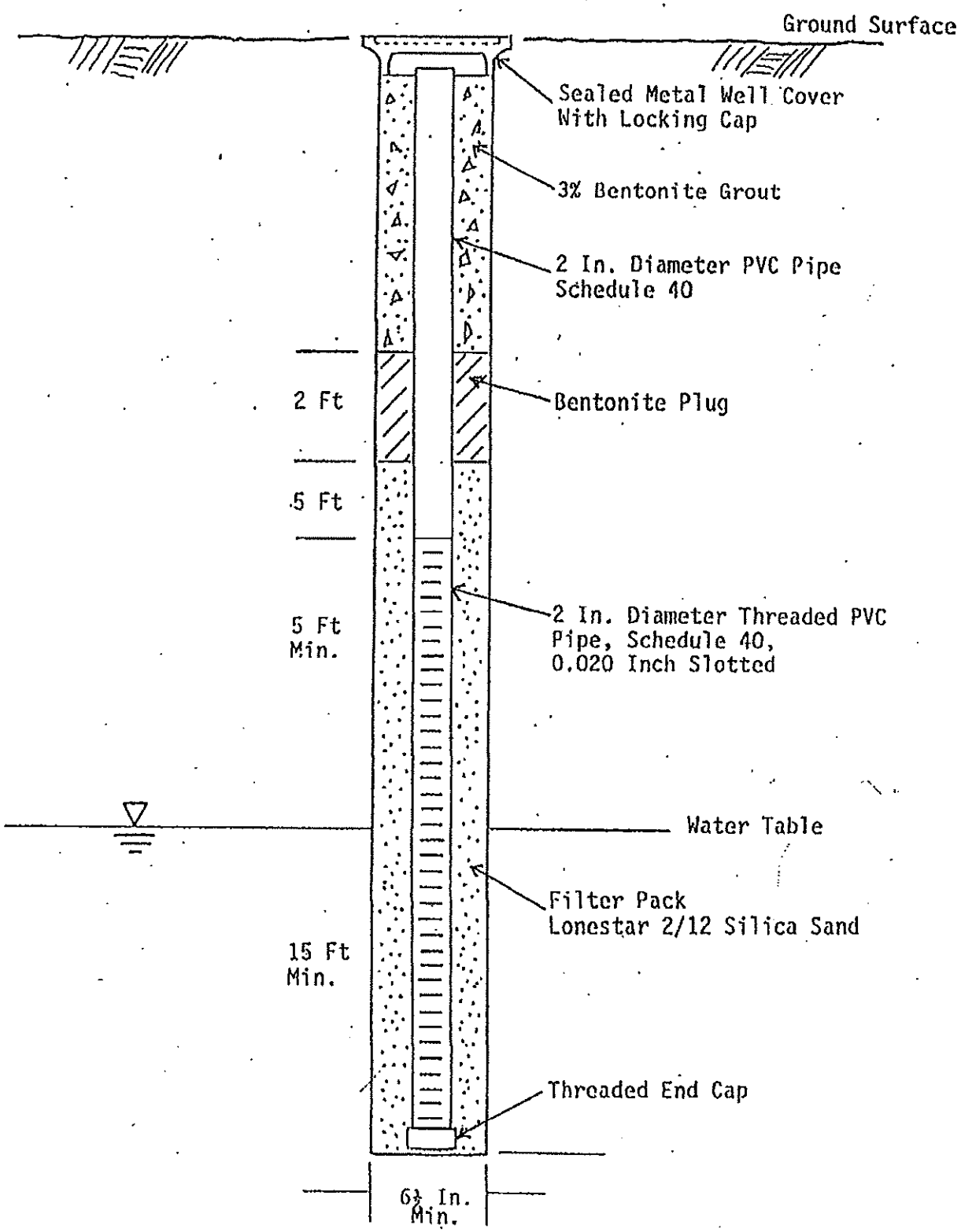
BORING NO. E14 — Tom Lamb 6/29/88

DEPTH FEET	SOIL CLASSIFICATION SYMBOL	SAMPLE/TEST NUMBER	SOIL DESCRIPTION	OVM READINGS/COMMENTS
0			Brown, dry loose; Silty fine to medium sand (SM)	
2			Dark brown, damp; ---------- Gradual Change; Fine to very coarse sand (SM)	
4				
6			Grey, very dense; (disintegrated Granitic rock)	
8				
10		E14 D10		200 ppm
12			Bottom of Boring 10 feet (refusal on granitic rock)	
14				
16				
18				
20				

PROJECT NO. TC03H.8
MAINTANANCE STATION

APPLIED HYDROGEOLOGIC

MONITORING WELL SCHEMATIC
(TYPICAL)



APPLIED HYDROGEOLOGIC consultants 3052 Clairemont Drive, Suite H-10 • San Diego, CA 92117 • (619) 275-6577	TYPICAL MONITORING WELL	Project No. TC03H.7

BORING LOG

BORING NO. MW1 (Monitor Well) — T. Lamb 10/3/87

DEPTH FEET	SOIL CLASSIFICATION SYMBOL	SAMPLE/TEST NUMBER	SOIL DESCRIPTION		OVM READINGS/COMMENTS
2			Brown, damp, loose	Silty fine to coarse sand (SM)	2 in. A.C. pavement Filled ground
4					
6		MW1-6.0	Brown, damp, loose	Fine to coarse sand (SW)	Weathered granitic rock 350 PPM
8					
10					
12					
14			Gray, dry, very dense	Unweathered granitic rock (granodiorite)	Stabilized Water Level
16					540 PPM
18		MW1-18.0	Brown, moist, dense	Fine to coarse sand (SM)	Weathered granitic rock
20			Saturated		
22			Gray, saturated, very dense	Unweathered granitic rock (granodiorite)	
24					
26					Fractures at 26.5 ft. to 28 ft.
28					
30					
32					Fractures at 32 ft. to 33 ft.
34					
36					
38			Bottom of hole 37 ft.		
40					

PROJECT NO.
Maint. Station
TC03H.7

APPLIED HYDROGEOLOGIC consultants

BORING LOG

BORING NO. MW2 (Monitor Well) — T. Lamb 10/3/87

DEPTH FEET	SOIL CLASSIFICATION SYMBOL	SAMPLE/TEST NUMBER	SOIL DESCRIPTION		OVM READINGS/COMMENTS
2			Gray, dry, very dense	Unweathered granitic rock (granodiorite)	2 in. A.C. pavement
4			Brown, damp, dense	Fine to very coarse sand (SW) with some unweathered granitic rocks to 1 ft. across	Weathered granitic rock
6					
8					
10					
12			Gray, dry, very dense	Unweathered granitic rock (granodiorite)	
14					
16					▼ Stabilized Water Level
18		MW2-18.0			350 PPM
20			Brown, damp, dense	Fine to very coarse sand (SW)	Weathered granitic rock
22					
24					
26			Gray, dry, very dense	Unweathered granitic rock (granodiorite)	Fractured
28					
30					
32					
34					
36					
38			Bottom of hole 37 ft.		
40					

PROJECT NO.
Maint. Station
TC03H.7

APPLIED HYDROGEOLOGIC consultants

BORING LOG

BORING NO. MW3 (Monitor Well) — T. Lamb 10/3/87

DEPTH FEET	SOIL CLASSIFICATION SYMBOL	SAMPLE/TEST NUMBER	SOIL DESCRIPTION		OVM READINGS/COMMENTS
0					2 in. A.C. pavement
2			Red brown, damp, loose	Very silty fine to medium sand (SM) with a few granitic chunks to 6 in. across	
4			Brown, damp, medium dense	Silty fine to coarse sand (SM)	Weathered granitic rock
6			Light brown,	Fine to very coarse sand (SW)	
8					
10					
12					
14					
16					▼ Stabilized Water Level
18					
20		MW3-20.0			600 PPM
22					
24			Saturated		
26					
28					
30					
32					
34					
36					
38					
40			Bottom of hole 40 ft.		

PROJECT NO.
Maint. Station
TC03H 7

APPLIED HYDROGEOLOGIC consultants

BORING LOG

BORING NO. MW4

DEPTH FEET	SOIL CLASSIFICATION SYMBOL	SAMPLE/TEST NUMBER	SOIL DESCRIPTION		OVM READINGS/COMMENTS
0			2 inches A.C. Pavement		
2			Light Brown, Damp, Medium dense	Silty Fine to coarse sand (SM)	
4					
6					
8			Gray-Brown dense		
10				Gradual Change	
12				Fine to coarse sand (SW) with Granitic rock	
14					
16					
18			Saturated		First water at 15 feet
20					
22			Gray, saturated, very dense	Weathered Granitic rock	
24					
26				Bottom of boring 25 feet	
28					
30					
32					
34					
36					
38					
40					

PROJECT NO. TC03H.8 MAINTENANCE STATION

APPLIED HYDROGEOLOGIC consultants

ALTON GEOSCIENCE
LOG OF EXPLORATORY BORING

PROJECT NO. 30-518-01 DATE DRILLED 6/11/91
CLIENT CALTRANS
LOCATION Sonora
LOGGED BY W. Shipp APPROVED BY

BORING NO. AB-1
WELL NO. MW-5

FIELD SKETCH OF BORING LOCATION

See Attached

TOP OF CASING ELEVATION 49.14' above msl

DRILLING METHOD Acker II, Hollow Stem Auger HOLE DIAM. 8"
SAMPLER TYPE California Modified Split-Spoon
CASING DATA 2" sched. 40 PVC, 0.020" slot, 10' blank, 20' screen
DRILLER West Hazmat Drilling Corp.

WATER LEVEL	12.53'		
DATE	6-18-91		
TIME	11:30		

BLOWS PER 1/2 FOOT (IN)	SAMPLE	DEPTH (ft.)	Well Construction	USCS	PROFILE	DESCRIPTION
		0	Christy Box			3" ASPHALT, 5" ROAD BASE
		2				
		4	Blank PVC Casing	CL		SILTY CLAY: light brown, moist, firm, medium plastic, some angular sand.
15, 50 for 6"		6				Brown, medium grained, highly weathered granite (granodiorite ?).
		8		SM		SANDY SILT: brown, moist, stiff, non to low plasticity, trace clay.
50 for 6"		10				Green, fine to medium grained Quartz-monzodiorite no soil recovery.
27,50 for 3"		12		SM		SILTY SAND: medium brown, moist, very dense, nonplastic, medium grained, angular sand.
50 for 0"		14	0.020" Slotted PVC Casing			Sampler refusal.
50 for 6"		16				SAND: medium brown, moist to wet, very dense, non-plastic, angular, well graded, minor silts.
		18				
50 for 5"		20				Same, becomes wet.
		22		SW		
		24				
50 for 4"		26				Same, saturated, fine to coarse grained.
		28				
50 for 4"		30	End Cap			Same.
		32				Borehole terminated at 30.5 feet below grade.
		34				

Portland Cement
Sand #3 Lonestar
Bentonite Pellets

Driven Interval
Sample
Ground water level encountered during drilling
Stabilized ground water level

ALTON GEOSCIENCE
LOG OF EXPLORATORY BORING

PROJECT NO. 30-518-01 DATE DRILLED 6/11/91
CLIENT CALTRANS
LOCATION Sonora
LOGGED BY W. Shipp APPROVED BY

BORING NO. AB-2
WELL NO. MW-6
Page 1 of 1

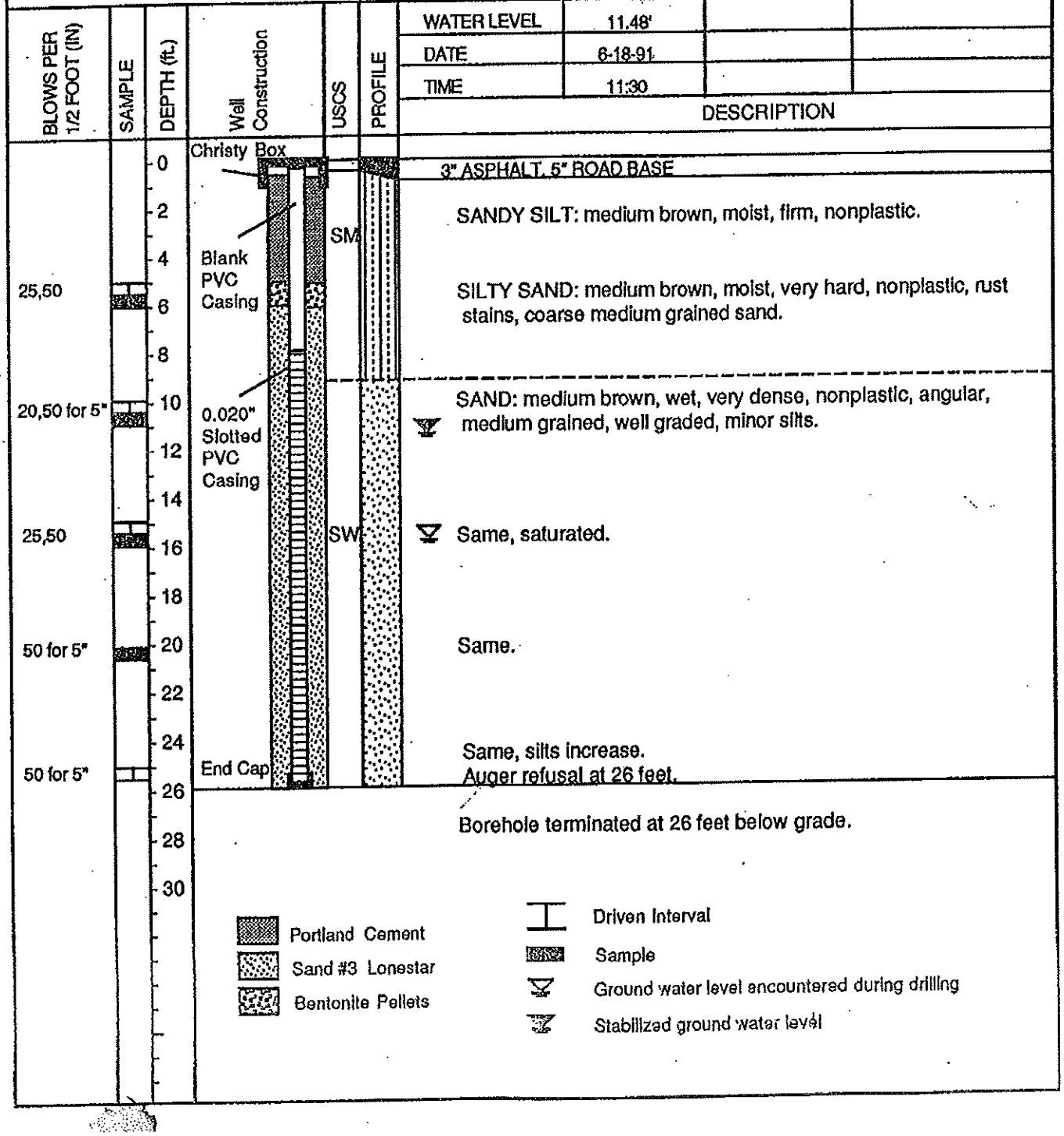
FIELD SKETCH OF BORING LOCATION

See Attached

TOP OF CASING ELEVATION 53.36' above msl

DRILLING METHOD Acker II, Hollow Stem Auger HOLE DIAM. 8"
SAMPLER TYPE California Modified Split-Spoon
CASING DATA 2" sched. 40 PVC, 0.020" slot, 8' blank, 18' screen
DRILLER West Hazmat Drilling Corp.

WATER LEVEL	11.48'		
DATE	6-18-91		
TIME	11:30		



ALTON GEOSCIENCE LOG OF EXPLORATORY BORING

PROJECT NO. 30-518-01 DATE DRILLED 6/11/91
CLIENT CALTRANS
LOCATION Sonora
LOGGED BY W. Shipp APPROVED BY

BORING NO. AB-3

FIELD SKETCH OF BORING LOCATION

See Attached

TOP OF CASING ELEVATION 49.14' above msl

DRILLING METHOD Acker II, Hollow Stem Auger HOLE DIAM. 8"
SAMPLER TYPE California Modified Split-Spoon
CASING DATA Not Applicable
DRILLER West Hazmat Drilling Corp.

WATER LEVEL	15.5'		
DATE	6/11/91		
TIME			

BLOWS PER 1/2 FOOT (IN)	SAMPLE	DEPTH (ft.)	Boring Closure	USCS	PROFILE	DESCRIPTION
		0				
		2				
		4				
20,50 for 5"		6		SM		SILTY SAND: medium brown, moist, loose, nonplastic.
		8				
		10				SAME.
22,50 for 5"		12				
		14		SP		SAND: medium brown, moist to wet, nonplastic, with minor silts and subangular gravels (app. 1/4").
50 for 5"		16				
		18				Borehole terminated at 18 feet below grade.
		20				
		22				
		24				
		26				
		28				
		30				
		32				
		34				

Portland Cement
Driven Interval
Sample
Ground water level encountered during drilling

ALTON GEOSCIENCE LOG OF EXPLORATORY BORING

PROJECT NO. 30-518-01 DATE DRILLED 6/11/91
CLIENT CALTRANS
LOCATION Sonora
LOGGED BY W. Shipp APPROVED BY

BORING NO. AB-4

FIELD SKETCH OF BORING LOCATION

See Attached

TOP OF CASING ELEVATION 49.14' above msl

DRILLING METHOD Acker II, Hollow Stem Auger HOLE DIAM. 8"
SAMPLER TYPE California Modified Split-Spoon
CASING DATA Not Applicable
DRILLER West Hazmat Drilling Corp.

WATER LEVEL	16'		
DATE	6/11/91		
TIME			

BLOWS PER 1/2 FOOT (IN)	SAMPLE	DEPTH (ft.)	Boring Closure	USCS	PROFILE	DESCRIPTION
		0				
		2				
		4				
15, 35, 50		6		SM		SILTY SAND: brown, moist, very dense, nonplastic, medium grained, angular sand.
		8				
		10				SANDY SILT / SILTY SAND: brown, wet to moist, very hard, nonplastic.
10, 36, 37		12				
		14				
18, 24, 33		16				
		18				Borehole terminated at 18 feet below grade.
		20				
		22				
		24				
		26				
		28				
		30				
		32				
		34				

Portland Cement
Driven Interval
Sample
Ground water level encountered during drilling

ALTON GEOSCIENCE
LOG OF EXPLORATORY BORING

PROJECT NO. 30-518-01 DATE DRILLED 6/12/91
CLIENT CALTRANS
LOCATION Sonora
LOGGED BY W. Shipp APPROVED BY

BORING NO. AB-5

Page 1 of 1

FIELD SKETCH OF BORING LOCATION

See Attached

TOP OF CASING ELEVATION 49.14' above msl

DRILLING METHOD Acker II, Hollow Stem Auger HOLE DIAM. 8"
SAMPLER TYPE California Modified Split-Spoon
CASING DATA Not Applicable
DRILLER West Hazmat Drilling Corp.

WATER LEVEL	18'		
DATE	6/12/91		
TIME			

BLOWS PER 1/2 FOOT (fN)	SAMPLE	DEPTH (ft.)	Boring Closure	USCS	PROFILE	DESCRIPTION
		0				
		2				
		4		SM		SILTY SAND: medium brown, moist, dense, fine grained, nonplastic.
50 for 5"		6				
		8				
		10		SW		SAND: medium brown, moist, dense, fine grained, with some silt.
27,50 for 5"		12				
		14				
		16		SM		SILTY SAND: medium brown; moist, dense, fine grained, nonplastic.
20,50 for 3"		18				
		20				SAME.
16, 40, 34		22				
		24				
		26				
		28				
		30				
		32				
		34				

Borehole terminated at 23 feet below grade.

Portland Cement

Driven Interval

Sample

Ground water level encountered during drilling

ALTON GEOSCIENCE
LOG OF EXPLORATORY BORING

PROJECT NO. 30-518-01 DATE DRILLED 6/12/91
CLIENT CALTRANS
LOCATION Sonora
LOGGED BY W. Shipp APPROVED BY

BORING NO. AB-6

Page 1 of 1

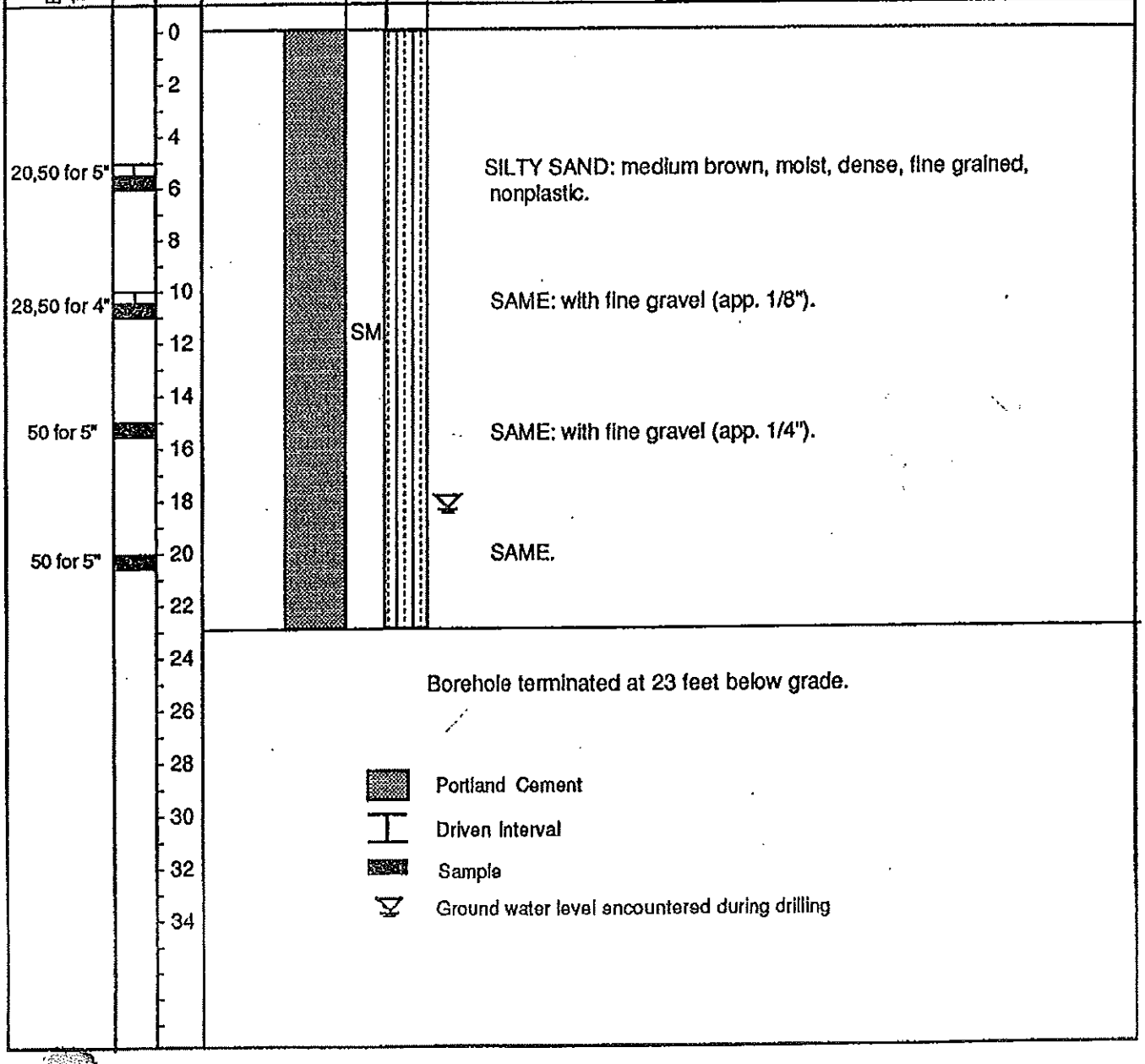
FIELD SKETCH OF BORING LOCATION

See Attached

TOP OF CASING ELEVATION 49.14' above msl

DRILLING METHOD Acker II, Hollow Stem Auger HOLE DIAM. 8"
SAMPLER TYPE California Modified Split-Spoon
CASING DATA Not Applicable
DRILLER West Hazmat Drilling Corp.

WATER LEVEL	18.5'		
DATE	6/12/91		
TIME			



ALTON GEOSCIENCE
LOG OF EXPLORATORY BORING

PROJECT NO. 30-518-01 DATE DRILLED 6/12/91
CLIENT CALTRANS
LOCATION Sonora
LOGGED BY W. Shipp APPROVED BY

BORING NO. AB-7
WELL NO. MW-7

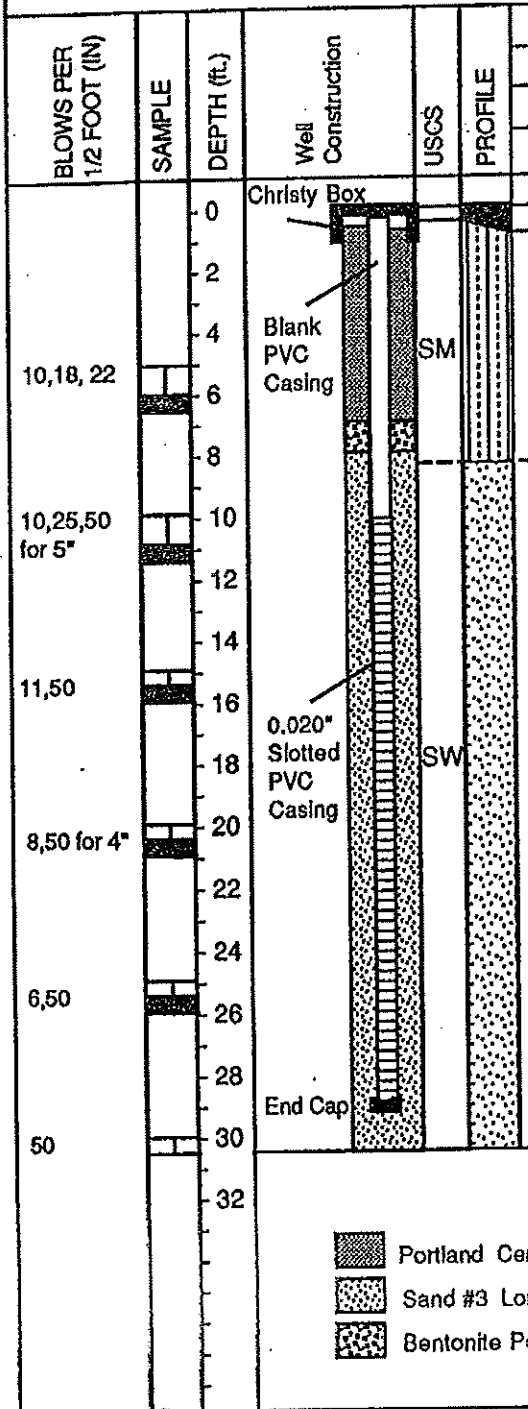
FIELD SKETCH OF BORING LOCATION

See Attached

TOP OF CASING ELEVATION 65.39' above msl

DRILLING METHOD Acker II, Hollow Stem Auger HOLE DIAM. 10"
SAMPLER TYPE California Modified Split-Spoon
CASING DATA 4" sched. 40 PVC, 0.020" slot, 10' blank, 19' screen
DRILLER West Hazmat Drilling Corp.

WATER LEVEL	18.33'		
DATE	6-18-91		
TIME	1130 AM		



DESCRIPTION
3" ASPHALT, 5" ROAD BASE
SANDY SILT: brown, moist, hard, low plasticity.
SAND: light brown, moist, very dense, nonplastic, fine to medium grained, angular, minor silts.
Same, green brown.
Same, brown, moist to wet.
Same, wet to staturated.
Same.

Borehole terminated at 30.5 feet below grade.

Portland Cement
Sand #3 Lonestar
Bentonite Pellets

Driven Interval
Sample
Ground water level encountered during drilling
Stabilized ground water level

ALTON GEOSCIENCE LOG OF EXPLORATORY BORING

PROJECT NO. 30-518-01 DATE DRILLED 6/12/91
CLIENT CALTRANS
LOCATION Sonora
LOGGED BY C. Ladd APPROVED BY

BORING NO. AB-8
WELL NO. MW-8

FIELD SKETCH OF BORING LOCATION

See Attached

TOP OF CASING ELEVATION 52.62' above msl

DRILLING METHOD Acker II, Hollow Stem Auger HOLE DIAM. 8"
SAMPLER TYPE California Modified Split-Spoon
CASING DATA 2" sched. 40 PVC, 0.020" slot, 7' blank, 17' screen
DRILLER West Hazmat Drilling Corp.

WATER LEVEL	10.58'		
DATE	6-18-91		
TIME	11:30 AM		

BLOWS PER 1/2 FOOT (IN)	SAMPLE	DEPTH (ft.)	Well Construction	USCS	PROFILE	DESCRIPTION
		0	Christy Box			3" ASPHALT, 5" ROAD BASE
25,50		2	Blank PVC Casing	SM		SILTY SAND: medium brown, moist, dense, nonplastic, fine grained.
		4				
		6				
		8				
50		10	0.020" Slotted PVC Casing			SAND: medium brown, moist, dense, non plastic.
		12				
		14				Same, trace of coal.
50		16		SW		
		18				
		20				Same, saturated, very fine grained sand.
50		22				
		24	End Cap			Same. Auger refusal at 25' below grade.
50 for 4"						

Borehole terminated at 25 feet below grade.

Portland Cement
Sand #3 Lonestar
Bentonite Pellets

Driven Interval
Sample
Ground water level encountered during drilling
Stabilized ground water level

PROJECT NO. S8745-06-26

BORING NO. B1

DATE DRILLED 4/10/02 WATER LEVEL (ATD) 5.4 meters

EQUIPMENT B-53 DRILLER V&W DRILLING

DEPTH IN METERS	PENETRAT. RESIST. BLOWS/FT.	SAMPLE NO.	LITHOLOGY	SOIL DESCRIPTION	SOIL (USCS)	HEADSPACE (PPM)
1				**5 CM ASPHALT**		
				FILL		
2	64	B1-5.0 0905		Medium dense, moist, moderate yellowish brown (10YR 5/4), Silty SAND	SM	0.0
3						0.0
	15	B1-11.0 0915		**COLLUVIUM** Medium stiff, moist, moderate yellowish brown (10YR 5/4), Clayey SILT	ML	
4				Medium stiff, moist, olive gray (5Y 3/2) Clayey SILT	ML	
5	50 FOR 3"	B1-15.5 0930		**BEDROCK** Hard, wet, dark greenish gray (5G 4/1), GRANODIORITE		0.0
	50 FOR 5"	B1-18.5 0950				0.0
6						
7				BORING TERMINATED AT 7.62 METERS		

Figure A1, Log of Boring B1, page 1 of 1

ENV_NO_WELL SONORA.GPJ 06/10/02

BORING ELEVATION:	NA	ENGINEER/GEOLOGIST:	GEMMA REBLANDO

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

INTERNATIONAL TECHNOLOGY CORPORATION

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 839408	PROJECT NAME: Old Sonora Maintenance Station		
BORING NUMBER: MW-9 (B-9)	COORDINATES:	DATE: 10/23/92	
ELEVATION:	GWL: Depth 14.5 Date/Time 0920	DATE STARTED: 10/23/92	
ENGINEER/GEOLOGIST: L. Moorhead	Depth 11.2 Date/Time 1055	DATE COMPLETED: 10/23/92	
DRILLING METHODS: (H.S.A) ~~Air Rotary~~		PAGE 1 OF 1	

DEPTH (ft)	~~SAMPLE~~ NO	TYPE & NO.	BLOWS ON SAMPLER PER ( )	RECOVERY ( )	DESCRIPTION	USCS SYMBOL	MEASURED CONSISTENCY (TSF)	WELL CONSTRUCTION	REMARKS
0					Topsoil				
5	21	L	50(6)		Silty Sand, Fine Sand, Poorly Graded, Tr. Clay, Tr. Gravel. V. Dense, Moist	SM			B9-1.5 0745
10					V. Well Cemented Bed of Fine Sand Boulder (?)	SP			B9-3.0 No Recovery
15	30	L	50(5)		Strong Odor, Moist - Wet Fine, Coarse Sand, Poorly Graded, Angular, Olive Brown, V. Dense	SP			B9-4.0 (13ft) 0810
20	20		50(5)		- Saturated Silty Sand, Olive-weak Odor Brown, Saturated. Bedrock				B9-5.5 0825
20					Boring Terminated @ 18.5ft, Refusal				
25					2" Well Set at 18ft. 10 ft of 0.10 Screen 8 ft of Blank Casing				

NOTES:

Drilling Contractor: West Hazmat

Drilling Equipment: CME 75 H.S.A.

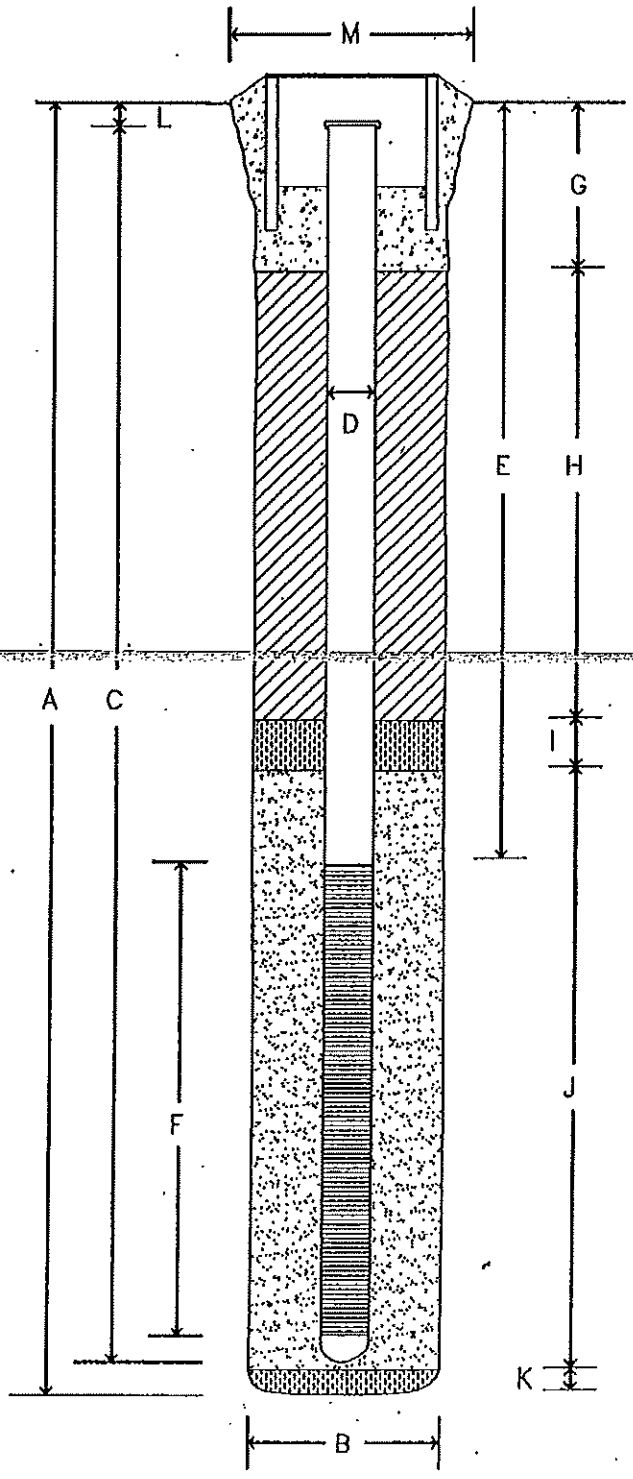
Driller:

- 2" Well : 10 ft Screen 0.10
  8 ft Blank.
- Very Hard Drilling, well-cemented Soil Bed @ 8-11 ft. ⇒ Almost Refusal

SINGLE COMPLETION WELL DETAILS

PROJECT NUMBER: 839408
PROJECT NAME: Old Sonora
COUNTY: _____
WELL PERMIT NO.: _____

BORING/WELL NO.: MW-9 (B-9)
TOP OF CASING ELEV.: _____
GROUND SURFACE ELEV.: _____
DATUM: _____



EXPLORATION BORING

A. Total Depth: 18 ft.
B. Boring Diameter: 8 in.
Drilling Method: Hollow Stem Auger

WELL CONSTRUCTION

C. Casing Length: 8 ft.
Material: _____
D. Diameter: 2 in.
E. Depth to Top of Perforations: 8 ft.
F. Perforated Length: 10 ft.
Perforated Interval from: 8 to 18 ft.
Perforation Type: _____
Perforation Size: 0.01
G. Surface Cap: 0-2 ft.
Cap Material: Concrete
H. Backfill: 2-4 ft.
Backfill Material: Cement-Bentonite
I. Plug: 4-6. ft.
Plug Material: Bentonite chips
J. Filter Pack: 6-18 ft.
Material: #3 Sand
K. Bottom Plug: _____ ft.
Material: _____
L. Top of Casing Depth: _____ ft.
M. Protective Cover Diameter: 8 in.

INTERNATIONAL TECHNOLOGY CORPORATION

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 839408	PROJECT NAME: Old Sonora Maintenance Station		
BORING NUMBER: B-10 (MW-10)	COORDINATES:	DATE: 10/23/02	
ELEVATION:	GWL: Depth 10.9 Date/Time 12:10	DATE STARTED: 10/23/02	
ENGINEER/GEOLOGIST: T. Moorhead	Depth Date/Time	DATE COMPLETED: 10/23/02	
DRILLING METHODS: (H.S.A) ~~Air Rotary~~		PAGE 1 OF 1	

DEPTH ( )	P.I.D. Sample	TYPE & NO.	BLOWS ON SAMPLER PER ( )	RECOVERY ( )	DESCRIPTION	USCS SYMBOL	MEASURED CONSISTENCY (TSF)	WELL CONSTRUCTION	REMARKS
					1' Topsoil Gravel, Coarse Angular Gravel, Fill Soil	GP			
5	21	L	50(6)		Silty Sand, Fine Poorly Graded, Tr. Clay, V. Dense, well cemented, Olive Brown, Tr. Odor	SM			B10-1.5 10:05
10	21	L	50(5)		V. well Cemented Bed of Fine Sand	SP			B10-3.0 1035
					Silty Sand, Poorly Graded, Fine Sand, Olive Brn, Moist-Wet Strong Odor, well cemented, V. Dense WET @ 11.0 ft	SM			
15					Refusal @ 13.0 ft.				
20					Set 2" Well to 12.ft w/ 7' Screen 5' Blank				
25									

NOTES:

Drilling Contractor: West Hazmat

Drilling Equipment: CME 75 H.S.A.

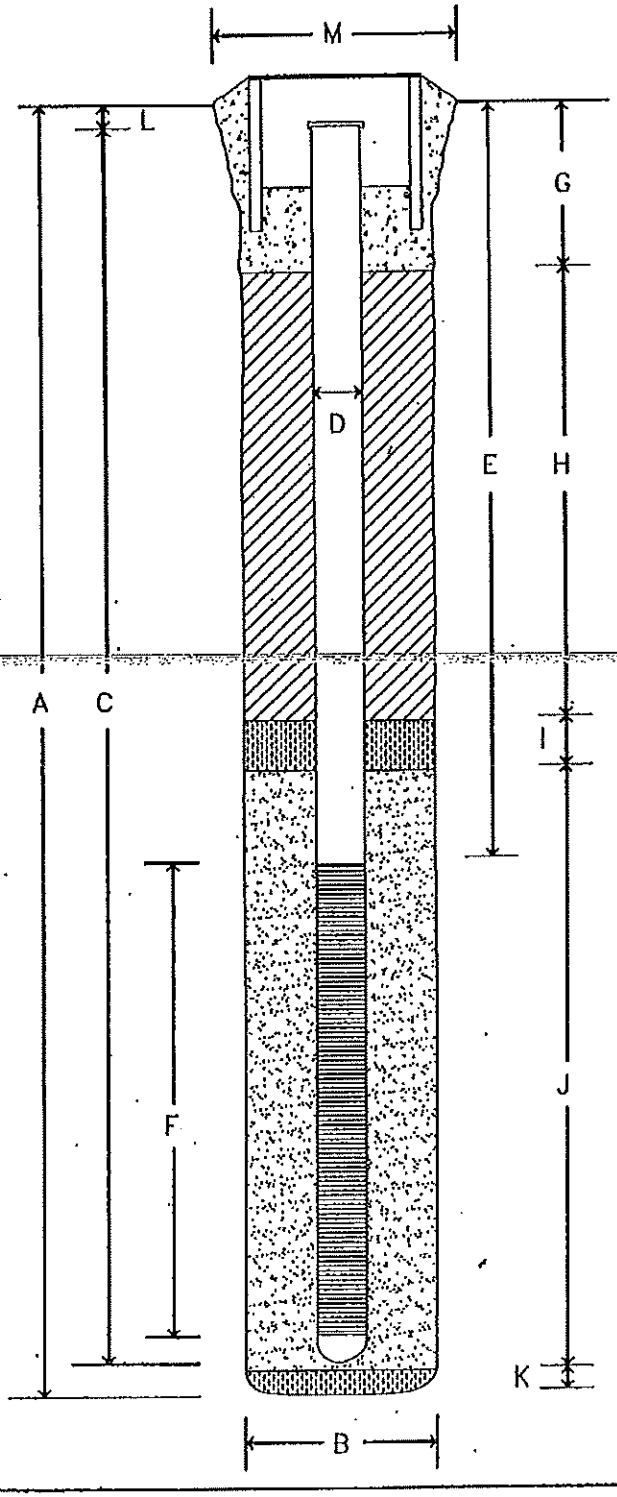
Driller:

Very Hard Drilling, Boring Refusal at 13.0 ft. Well Cemented Soil Especially @ 8-10 ft.

SINGLE COMPLETION WELL DETAILS

PROJECT NUMBER: 839408
PROJECT NAME: OLD SONORA
COUNTY: TUOLUMNE
WELL PERMIT NO.: _____

BORING/WELL NO.: MW-16 (B-10)
TOP OF CASING ELEV.: _____
GROUND SURFACE ELEV.: _____
DATUM: _____



EXPLORATION BORING

A. Total Depth: 13 ft.
B. Boring Diameter: 8 in.
Drilling Method: Hollow Stem Auger

WELL CONSTRUCTION

C. Casing Length: 6 ft.
Material: _____
D. Diameter: 2 in.
E. Depth to Top of Perforations: _____ ft.
F. Perforated Length: 7 ft.
Perforated Interval from: 6 to 13 ft.
Perforation Type: _____
Perforation Size: 0.01
G. Surface Cap: 0-2 ft.
Cap Material: Concrete
H. Backfill: — ft.
Backfill Material: —
I. Plug: 2-4 ft.
Plug Material: Bentonite Chips
J. Filter Pack: 4-13 ft.
Material: #3 Sand
K. Bottom Plug: _____ ft.
Material: _____
L. Top of Casing Depth: _____ ft.
M. Protective Cover Diameter: 8 in.

INTERNATIONAL TECHNOLOGY CORPORATION

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 839408	PROJECT NAME: Old Sonora Maintenance Station		
BORING NUMBER: MW-11 (CB-11)	COORDINATES:	DATE: 10/22/02	
ELEVATION:	GWL: Depth 19.50 Date/Time 14:00	DATE STARTED: 10/22/02	
ENGINEER/GEOLOGIST: I. Muirhead	Depth Date/Time	DATE COMPLETED: 10/22/02	
DRILLING METHODS: H.S.A Air Rotary		PAGE 1 OF 1	

DEPTH ( )	SAMPLE NO.	TYPE & NO.	BLOWS ON SAMPLER PER ( )	RECOVERY ( )	DESCRIPTION	USCS SYMBOL	MEASURED CONSISTENCY (TSP)	WELL CONSTRUCTION	REMARKS
					3" Asphalt 6" Gravel Base	GP			
					Silty Sand, v. dense, moist, Red-Brown, Poorly Graded	SM			
5		41 L	220 50(5)						BH-1.5 12:45
					Sand, Fine Sand, Poorly Graded, weakly cemented, Olive Brn Tr. Gravel, mois. slt no odor	SP			
10		21 L	50(6)		-Becomes Fine-Coarse Sand, Tr. Clay. Mod. Cemented. Moist				BH-3.0 13:00
					~~Moist~~ Odor				
15		18 L	50(5)		Tr. Odor				BH-4.5 13:20
20		21 L	50(5)		▽ 19.5 @ 14:00				BH-6.0 13:15
					▽ Saturated				
25		5 L	50(3)		Boring Terminated @ 25.0 ft Bedrock (?) @ 25.0 ft.				BH-7.5 13:25

NOTES:

Drilling Contractor West Hazmat

Drilling Equipment CME 75 H.S.A

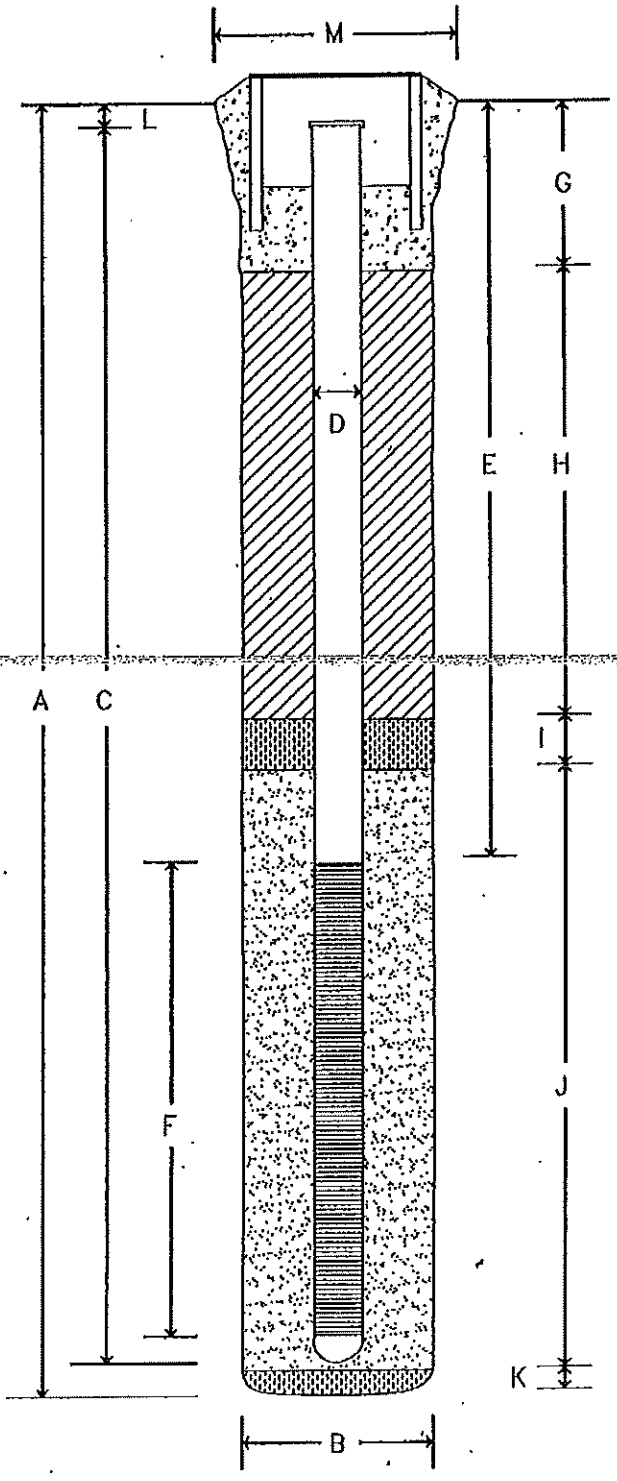
Driller:

- 2" well set @ 25.0 ft
- Hit water @ 22.0 ft.
- 10 ft Screen, 15 ft. Blank Casing

SINGLE COMPLETION WELL DETAILS

PROJECT NUMBER: 839408
PROJECT NAME: OCCI SONORA
COUNTY: TUOLUMNE
WELL PERMIT NO.: _____

BORING/WELL NO.: MW-11 (B-11)
TOP OF CASING ELEV.: _____
GROUND SURFACE ELEV.: _____
DATUM: _____



EXPLORATION BORING

A. Total Depth: 25 ft.
B. Boring Diameter: 8 in.
Drilling Method: Hollow Stem Auger

WELL CONSTRUCTION

C. Casing Length: 15 ft.
Material: _____
D. Diameter: 2 in.
E. Depth to Top of Perforations: 15 ft.
F. Perforated Length: 10 ft.
Perforated Interval from: 15 to 25 ft.
Perforation Type: _____
Perforation Size: 0.01
G. Surface Cap: 0-2 ft.
Cap Material: Concrete
H. Backfill: 2-10 ft.
Backfill Material: Cement-Bentonite
I. Plug: 10-13 ft.
Plug Material: Bentonite Chips
J. Filter Pack: 13-25 ft.
Material: #3 Sand
K. Bottom Plug: _____ ft.
Material: _____
L. Top of Casing Depth: _____ ft.
M. Protective Cover Diameter: 8 in.

INTERNATIONAL TECHNOLOGY CORPORATION

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 839408	PROJECT NAME: Old Sonora Maintenance Station		
BORING NUMBER: MW-12 (B-12)	COORDINATES:	DATE: 10/22/02	
ELEVATION:	GWL: Depth 19.00 Date/Time 11:00 AM	DATE STARTED: 10/22/02	
ENGINEER/GEOLOGIST: T. Moorhead	Depth Date/Time	DATE COMPLETED:	
DRILLING METHODS: (H.S.A) Air Rotary		PAGE 1 OF 1	

DEPTH (Ft.)	PID SCANNING	TYPE & NO.	BLOWS ON SAMPLER PER ( )	RECOVERY ( )	DESCRIPTION	USCS SYMBOL	MEASURED CONSISTENCY (TSF)	WELL CONSTRUCTION	REMARKS
					3" Asphalt				
					6" Silty Gravel Base	GP			
					Clayey Fine SAND, Moist,	SC			
5					Clay, Brown, Moist, TR. SAND	CL			
	<1	L	33 SO(4)		Fine SAND, Yellow. Brn w/ Fe-Oxide Staining., weakly Cemented, Moist V. Dense, TR, Silt	SP			B12-1.5 09:50
10					-Cobble				
	<1	L	24 50(5")		SAND, F-C Poorly Graded, Moist Moderately Cemented, Moist.				B12-3.0 09:58
					D.G.				
15									
	<1	L	30 50(a)						B12-4.5 10:10
					▽ 19.0 ft @ 11:00 AM.				
20	<1	L	30 50(a)						B12-6.0 10:26
					-Saturated @ 22 ft.				
25					NO RECOVERY, Bedrock @ 25ft.				B12-7.5 10:45
					Boring T.D @ 25.0 ft.				

NOTES:

Drilling Contractor: West Hazmat

Drilling Equipment: CME 75 H.S.A

Driller:

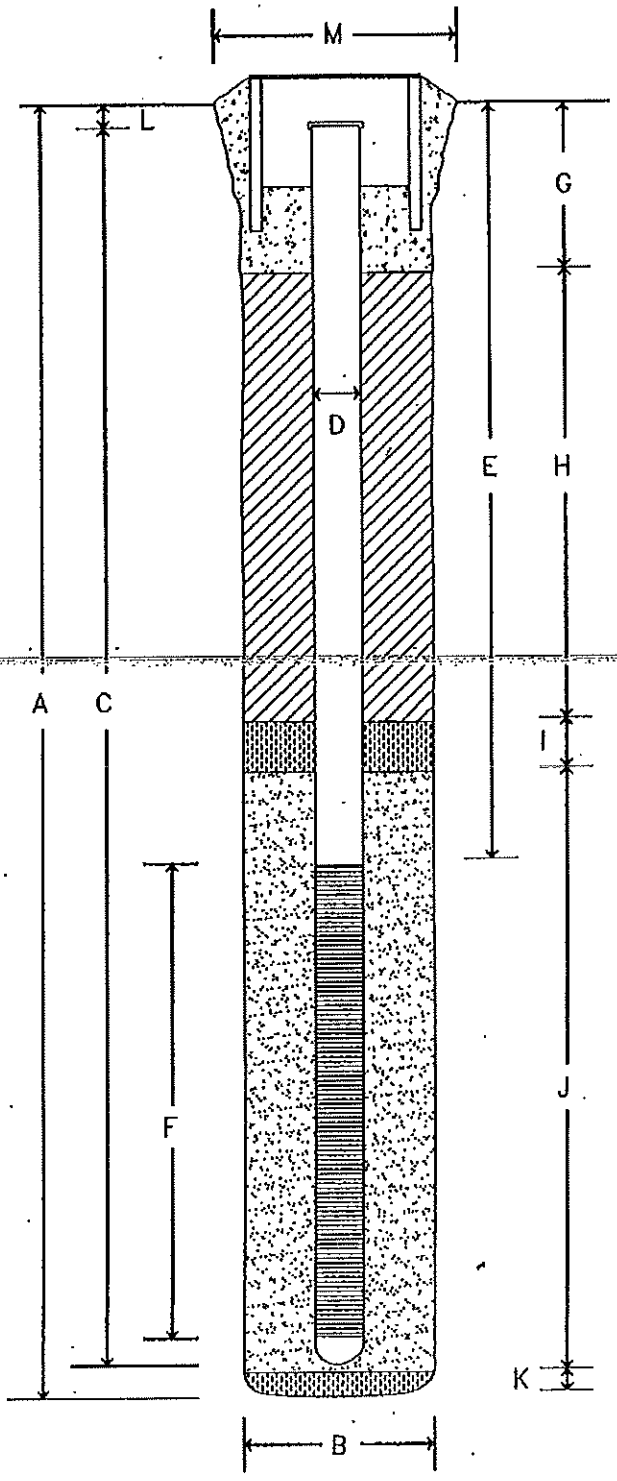
- Hollow Stem Auger to 25.0 ft.
- Hit Water at 22.0 ft, Base of Unconsolidated Material/Soil
- 2" Well: 10 ft. Screen. 15 ft. Blank
- 4 Bags #3 Sand; 2 Bags Chips

243B-3-88

SINGLE COMPLETION WELL DETAILS

PROJECT NUMBER: 839408
PROJECT NAME: OLD SONORA
COUNTY: TUOLUMNE CO.
WELL PERMIT NO.: _____

BORING/WELL NO.: MW-12 (B-12)
TOP OF CASING ELEV.: _____
GROUND SURFACE ELEV.: _____
DATUM: _____



EXPLORATION BORING

A. Total Depth: 25 ft.
B. Boring Diameter: 8 in.
Drilling Method: Hollow Stem Auger

WELL CONSTRUCTION

C. Casing Length: 15 ft.
Material: _____
D. Diameter: 2 in.
E. Depth to Top of Perforations: 15 ft.
F. Perforated Length: 10 ft.
Perforated Interval from: 15 to 25 ft.
Perforation Type: _____
Perforation Size: 0.01
G. Surface Cap: 0-2 ft.
Cap Material: Concrete
H. Backfill: 2-10 ft.
Backfill Material: Cement-Bentonite
I. Plug: 10-13 ft.
Plug Material: Bentonite Chips
J. Filter Pack: 13-25 ft.
Material: SAND
K. Bottom Plug: _____ ft.
Material: _____
L. Top of Casing Depth: _____ ft.
M. Protective Cover Diameter: 8 in.

Shaw™
Shaw E & I, Inc.

Drilling Log

MW-13

Project Caltrans - Sonora Owner Caltrans
Location Old Sonora Maintenance Station, Rte. 108 Proj. No. 101356
Surface Elev. ____ Total Hole Depth 35ft Diameter 8 in.
Top of Casing ____ Water Level Initial ~26ft Static 23.6ft @ 12-10-03
Screen: Dia 4in. Length 15ft Type/Size Sch. 40 PVC/0.020 in
Casing: Dia 4in. Length 17ft Type Sch. 40 PVC
Fill Material Neat cement/bentonite/#3 sand Rig/Core TH-60 D420/ Cuttings
Drill Co. PC Exploration Method Air Rotary
Driller Nate Hinkle Log By Ed Simonis Date 12-9-03 Permit # ____
Checked By Ed Simonis License No. RG# 4422

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	Sample ID	FID ppm	Graphic Log	USCS Class.	Description (Color, Texture, Structure)
-2 to 0						Asphalt over silty, arkosic sand: reddish brown, moist to dry
2 to 4					SW/SM	
6						grades gravelly
8					GW/GM	
10 to 12						grades increasing frequency of cobbles/boulders
14 to 16						
18			0			
20 to 22						Diorite boulder
22						
24		MW-13 23.5	110 380		GW	Cobbles and boulders in arkosic sand matrix: gray to olive gray, damp to wet, hydrocarbon odor at wellhead and cuttings.
26			110			

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Drilling Log

MW-13

Project Caltrans-Sonora Owner Caltrans
Location Old Sonora Maintenance Station, Rte. 108 Proj. No. 101356

Depth (ft.)	Well Completion	Sample ID	FID ppm	Graphic Log	USCS Class.	Description (Color, Texture, Structure)
26						
28			160		GW	Diorite drill cuttings: gray, wet, decreasing HC odor
30			80			slight HC odor
32						grades very wet
34			20			trace HC odor
36						End of boring at 35 feet bg. Install monitoring well to 32.5 feet bg on top of cavings.
38						
40						
42						
44						
46						
48						
50						
52						
54						
56						
58						
60						

Shaw™
Shaw E & I, Inc.

Drilling Log

MW-14

Project Caltrans - Sonora Owner Caltrans
Location Old Sonora Maintenance Station, Rte. 108 Proj. No. 101356
Surface Elev. ____ Total Hole Depth 26ft Diameter 8in.
Top of Casing ____ Water Level Initial ~ Static 8.6
Screen: Dia 4in. Length 15ft Type/Size Sch.40 PVC/.020in
Casing: Dia 4in Length 10ft Type Sch.40 PVC
Fill Material Neat cement/bentonite/#3 sand Rig/Core TH-60 D420/ Cuttings
Drill Co. PC Exploration Method Air Rotary
Driller Nate Hinkle Log By Ed Simonis Date 12-10-03 Permit # ____
Checked By Ed Simonis License No. RG# 4422

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	Sample ID	FID ppm	Graphic Log	USCS Class.	Description (Color, Texture, Structure)
-2						Hand auger to 5.5 feet
0						Grass over clayey sand: red brown, wet, no odor
2					SC/CL	
4					SW	grades arkosic sand: dry/damp, loose to soft
6						
8			0			▽ 12-10-03, 1400 hrs
10			0			grades damp
12						grades wet
14			0			grades increasing gravel, cobbles, boulders
16					SW/GW	
18						
20						
22						
24			0			
26	cavings					End of boring @ 26'; install monitoring well to 25'

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Shaw E & I, Inc.

Drilling Log

MW-15

Project Caltrans - Sonora Owner Caltrans
Location Old Sonora Maintenance Station, Rte. 108 Proj. No. 101356
Surface Elev. ____ Total Hole Depth 25ft Diameter 8in
Top of Casing ____ Water Level Initial ~12ft Static 11.0ft @ 1600hrs
Screen: Dia 4in. Length 15ft Type/Size Sch.40 PVC/0.020 in.
Casing: Dia 4in Length 10ft Type Sch.40 PVC
Fill Material Neat cement/bentonite/#3 sand Rig/Core TH-60 D120/ Cuttings
Drill Co. PC Exploration Method Air Rotary
Driller Nate Hinkle Log By Ed Simonis Date 12-9-03 Permit # ____
Checked By Ed Simonis License No. RG# 4422

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	Sample ID	FID ppm	Graphic Log	USCS Class.	Description (Color, Texture, Structure)
-2						Hand auger to 4.5ft. refusal on rocky debris
0						Fill of clayey, silty, gravelly sand (15, 20, 20, 45):
2					GM/SM	with blocks/cobbles of diorite & metavolcanics
4						no hydrocarbon odor
6						Diorite boulder: gray, very hard
8			0			
10			0		GW	
12			0			▽ grades moist/wet
14						
16						
18						
20			0			Boulder?
22					GW	
24			0			
26						

PROJECT NO. S9200-06-01

DEPTH IN FEET	PENETRAT. RESIST. BLOWS/FT.	SAMPLE NO.	LITHOLOGY	BORING NO. GS1 DATE DRILLED 1/9/2008 WATER LEVEL (ATD) 15.0' EQUIPMENT Marl M10 DRILLER Gregg	SOIL (USCS)	HEADSPACE (PPM)
				SOIL DESCRIPTION		
1				6 INCHES ASPHALT CONCRETE 4 INCHES AGGREGATE BASE **BEDROCK** Soft, dry, yellowish brown, GRANITE, extremely weathered, friable, foliated		
2						
3						
4				- brown		
5						
6						
7						
8				- difficult drilling		
9						
10						
11						
12						
13						
14						
15				▼		
16				BORING TERMINATED AT 16 FEET NO ODOR OR SHEEN OBSERVED		

Figure 6, Log of Boring GS1, page 1 of 1

ENV_NO_WELL OLD SONORA_REV.GPJ 06/20/08

BORING ELEVATION:

ENGINEER/GEOLOGIST: **Ian Stevenson**

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S9200-06-01

DEPTH IN FEET	PENETRAT. RESIST. BLOWS/FT.	SAMPLE NO.	LITHOLOGY	BORING NO. GS2 DATE DRILLED 1/9/2008 WATER LEVEL (ATD) EQUIPMENT Marl M10 DRILLER Gregg	SOIL (USCS)	HEADSPACE (PPM)
				SOIL DESCRIPTION		
1				**6 INCHES ASPHALT CONCRETE** **4 INCHES AGGREGATE BASE** **BEDROCK** Soft, dry, yellowish brown, GRANITE, extremely weathered, friable, foliated		
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12				- brown		
13						
14						
15						
16						
17				REFUSAL - BORING TERMINATED AT 17 FEET NO FREE GROUNDWATER ENCOUNTERED FIRST ATTEMPT ECOUNTERED REFUSAL AT 9 FEET		

Figure 8, Log of Boring GS2, page 1 of 1

ENV_NO_WELL OLD SONORA_REV.GPJ 06/20/08

BORING ELEVATION:	ENGINEER/GEOLOGIST: **Ian Stevenson**

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S9200-06-01

DEPTH IN FEET	PENETRAT. RESIST. BLOWS/FT.	SAMPLE NO.	LITHOLOGY	BORING NO. GS3 DATE DRILLED 1/9/2008 WATER LEVEL (ATD) 20.0' EQUIPMENT Marl M10 DRILLER Gregg	SOIL (USCS)	HEADSPACE (PPM)
				SOIL DESCRIPTION		
1				**FILL - AGGREGATE BASE**		
2				**BEDROCK** Soft, dry, yellowish brown, GRANITE, extremely to completely weathered, friable		
3						
4						
5						
6						
7						
8						
9						
10						
11						
12				- olive gray, drilling difficult		
13						
14						
15						
16						
17						
18				- brown		
19						
20				▼		
21						
22				BORING TERMINATED AT 22 FEET NO ODOR OR SHEEN OBSERVED		

Figure 9, Log of Boring GS3, page 1 of 1

ENV_NO_WELL OLD SONORA_REV.GPJ 06/20/08

BORING ELEVATION:	ENGINEER/GEOLOGIST: **Ian Stevenson**

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S9200-06-01

DEPTH IN FEET	PENETRAT. RESIST. BLOWS/FT.	SAMPLE NO.	LITHOLOGY	BORING NO. GS4 DATE DRILLED 1/9/2008 WATER LEVEL (ATD) 24.0' EQUIPMENT Marl M10 DRILLER Gregg	SOIL (USCS)	HEADSPACE (PPM)
				SOIL DESCRIPTION		
1				**FILL - AGGREGATE BASE**		
2				**BEDROCK** Soft, dry, yellowish brown, GRANITE, extremely to completely weathered, friable		
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18				- brown		
19						
20						
21						
22						
23						
24				▼		
25				BORING TERMINATED AT 25 FEET		

Figure 10, Log of Boring GS4, page 1 of 1

ENV_NO_WELL OLD SONORA_REV.GPJ 06/20/08

BORING ELEVATION:

ENGINEER/GEOLOGIST: **Ian Stevenson**

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S9200-06-01

DEPTH IN FEET	PENETRAT. RESIST. BLOWS/FT.	SAMPLE NO.	LITHOLOGY	BORING NO. GS5 DATE DRILLED 1/10/2008 WATER LEVEL (ATD) 12.0' EQUIPMENT Marl M10 DRILLER Gregg	SOIL (USCS)	HEADSPACE (PPM)
				SOIL DESCRIPTION		
1				5 INCHES ASPHALT CONCRETE 7 INCHES AGGREGATE BASE **BEDROCK** Dense, moist, yellowish brown, GRANITE, extremely to completely weathered		
2						
3						
4						
5						
6						
7						
8				- drilling difficult		
9						
10						
11						
12				▼		
13				BORING TERMINATED AT 13 FEET NO ODOR OR SHEEN FIRST ATTEMPT ENCOUNTERED REFUSAL AT 9 FEET		

Figure 12, Log of Boring GS5, page 1 of 1

ENV_NO_WELL OLD SONORA_REV.GPJ 06/20/08

BORING ELEVATION:	ENGINEER/GEOLOGIST: **Ian Stevenson**

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S9200-06-01

DEPTH IN FEET	PENETRAT. RESIST. BLOWS/FT.	SAMPLE NO.	LITHOLOGY	BORING NO. GS6 DATE DRILLED 1/10/2008 WATER LEVEL (ATD) 15.0' EQUIPMENT Marl M10 DRILLER Gregg	SOIL (USCS)	HEADSPACE (PPM)
				SOIL DESCRIPTION		
1				5 INCHES ASPHALT CONCRETE 7 INCHES AGGREGATE BASE **ALLUVIUM** Firm, moist, gray, CLAY	CL	
2						
3						
4						
5				Stiff, moist, olive gray, Sandy CLAY		
6						
7						
8						
9						
10						
11				**BEDROCK** Dense, moist, yellowish brown, GRANITE, extremely to completely weathered		
12						
13						
14						
15				▼		
16						
17				BORING TERMINATED AT 17 FEET		

Figure 13, Log of Boring GS6, page 1 of 1

ENV_NO_WELL OLD SONORA_REV.GPJ 06/20/08

BORING ELEVATION:	ENGINEER/GEOLOGIST: **Ian Stevenson**

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S9200-06-01

BORING NO. GS7

DATE DRILLED 1/10/2008 WATER LEVEL (ATD) 12.0'

EQUIPMENT Marl M10 DRILLER Gregg

DEPTH IN FEET	PENETRAT. RESIST. BLOWS/FT.	SAMPLE NO.	LITHOLOGY	SOIL DESCRIPTION	SOIL (USCS)	HEADSPACE (PPM)
1				**5 INCHES ASPHALT CONCRETE**		
				12 INCHES AGGREGATE BASE		
2				**FILL** Firm, moist, brown, Sandy CLAY	CL	
3						
4				**BEDROCK** Dense, slightly moist, yellowish brown, GRANITE, completely weathered		
5						
6						
7						
8						
9						
10						
11						
12				▼		
13						
14						
15				BORING TERMINATED AT 15 FEET		

Figure 14, Log of Boring GS7, page 1 of 1

ENV_NO_WELL OLD SONORA_REV.GPJ 06/20/08

BORING ELEVATION:

ENGINEER/GEOLOGIST: **Ian Stevenson**

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S9200-06-01

DEPTH IN FEET	PENETRAT. RESIST. BLOWS/FT.	SAMPLE NO.	LITHOLOGY	BORING NO. GS8 DATE DRILLED 1/10/2008 WATER LEVEL (ATD) 18.5' EQUIPMENT Marl M10 DRILLER Gregg	SOIL (USCS)	HEADSPACE (PPM)
				SOIL DESCRIPTION		
1				2 INCHES ASPHALT CONCRETE 6 INCHES AGGREGATE BASE **ALLUVIUM** Firm, moist, brown, CLAY with sand	CL	
2						
3						
4				**BEDROCK** Dense, slightly moist, strong brown, GRANITE, extremely to completely weathered		
5						
6						
7						
8				- olive gray		
9						
10						
11						
12						
13						
14						
15						
16						
17						
18				▼		
19						
20				BORING TERMINATED AT 20 FEET THREE ATTEMPTS ENCOUNTERED REFUSAL AT 8, 8, AND 6 FEET		

Figure 15, Log of Boring GS8, page 1 of 1

ENV_NO_WELL OLD SONORA_REV.GPJ 06/20/08

BORING ELEVATION:

ENGINEER/GEOLOGIST: **Ian Stevenson**

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S9200-06-01

DEPTH IN FEET	PENETRAT. RESIST. BLOWS/FT.	SAMPLE NO.	LITHOLOGY	**BORING NO. B-1** DATE DRILLED 5/5/2008 WATER LEVEL (ATD) EQUIPMENT Marl M5T DRILLER Gregg	SOIL (USCS)	HEADSPACE (PPM)
				SOIL DESCRIPTION		
1				**2 INCHES ASPHALT CONCRETE** **6 INCHES AGGREGATE BASE** **ALLUVIUM** Firm, moist, brown, CLAY with sand	CL	
2						
3						
4						
5				**BEDROCK** Hard, slightly moist, brown, GRANITE, extremely to completely weathered		
6						
7						
8						
9						
10				REFUSAL - BORING TERMINATED AT 10 FEET SECOND ATTEMPT ENCOUNTERED REFUSAL AT 6 FEET		

Figure 1, Log of Boring B-1, page 1 of 1

ENV_NO_WELL OLD SONORA_REV.GPJ 06/20/08

BORING ELEVATION:	ENGINEER/GEOLOGIST: **Ian Stevenson**

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S9200-06-01

BORING/WELL NO. MW16

DATE DRILLED 5/5/2008 WATER LEVEL (ATD) 25.0'

EQUIPMENT Marl M5T DRILLER Gregg

DEPTH IN FEET	PENETRAT. RESIST. BLOWS/FT.	SAMPLE NO.	LITHOLOGY	SOIL DESCRIPTION	WELL CONSTRUCTION	HEADSPACE (PPM)
1–4				**FILL** Dry, loose, gray, Silty GRAVEL with sand		
4–5				**COLLUVIUM** Medium dense, moist, strong brown, Clayey SAND with gravel (weathered granite), rootlets		
5–6				**BEDROCK** Soft, dry, yellowish brown, GRANITE, extremely weathered, friable, foliated		
6		MW16-6.0 1450				0.6
11		MW16-11.0 1500				0.2
16		MW16-16.0 1516				0.2
21		MW16-21.0 1529				0.2

Figure 3, Log of Boring MW16, page 1 of 2

ENV_WELL OLD SONORA_REV.OPJ 06/20/08

CASING ELEVATION:	QUANTITY OF FILTER MATERIAL: 6 bags
DIAMETER & TYPE OF CASING: 2 INCH SCH 40 PVC	WELL SEAL & INTERVAL: Bentonite, 15-17'
CASING INTERVAL: 0-19.0	WELL SEAL QUANTITY: 1 bag
WELL SCREEN: 0.020 Slotted	ANNULUS SEAL/INTERVAL: Concrete 0.5-15'
SCREEN INTERVAL: 19.0-34.0'	ADDITIVES:
WELL COVER: Flush Mount	WELL DEPTH: 34
FILTERPACK/INTERVAL:17.0-34' #2/12 SAND	ENGINEER/GEOLOGIST: Ian Stevenson

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S9200-06-01

BORING/WELL NO. MW16

DATE DRILLED 5/5/2008 WATER LEVEL (ATD) 25.0'

EQUIPMENT Marl M5T DRILLER Gregg

DEPTH IN FEET	PENETRAT. RESIST. BLOWS/FT.	SAMPLE NO.	LITHOLOGY	SOIL DESCRIPTION	WELL CONSTRUCTION	HEADSPACE (PPM)
26		MW16-26.0 1546				0.2
27						
28						
29						
30		MW16-29.5 1608				0.0
31						
32				- difficult drilling		
33						
34				BORING TERMINATED AT 34 FEET		
35						
36						
37						
38						
39						
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						
54						

Figure 4, Log of Boring MW16, page 2 of 2

ENV_WELL OLD SONORA_REV.GPJ 06/20/08

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S9200-06-01

BORING/WELL NO. MW17

DATE DRILLED 5/6/2008 WATER LEVEL (ATD) 15.0'

EQUIPMENT Marl M5T DRILLER Gregg

DEPTH IN FEET	PENETRAT. RESIST. BLOWS/FT.	SAMPLE NO.	LITHOLOGY	SOIL DESCRIPTION	WELL CONSTRUCTION	HEADSPACE (PPM)
1				**6 INCHES ASPHALT CONCRETE** **12 INCHES AGGREGATE BASE**		
2				**BEDROCK** Soft, slightly moist, yellowish brown, GRANITE, foliated, friable		
3						
4						
5						
6		MW17-6.0 0857				0.2
7						
8						
9						
10						
11		MW17-11.0 0909				1.1
12						
13						
14						
15				▼		
16		MW17-16.0 0928				0.2
17						
18						
19						
20						
21		MW17-21.0 0930				0.0
22						
23						
24		MW17-24.5				

Figure 5, Log of Boring MW17, page 1 of 2

ENV_WELL OLD SONORA_REV.GPJ 06/20/08

CASING ELEVATION:	QUANTITY OF FILTER MATERIAL: 5.5 bags
DIAMETER & TYPE OF CASING: 2 INCH SCH 40 PVC	WELL SEAL & INTERVAL: Bentonite, 6-8'
CASING INTERVAL: 0-10'	WELL SEAL QUANTITY: 1 bag
WELL SCREEN: 0.020 Slotted	ANNULUS SEAL/INTERVAL: Concrete 0-6'
SCREEN INTERVAL: 10-25'	ADDITIVES:
WELL COVER: Flush Mount	WELL DEPTH: 25
FILTERPACK/INTERVAL: 8-25' #2/12 SAND	ENGINEER/GEOLOGIST: Ian Stevenson

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S9200-06-01

BORING/WELL NO. MW17

DATE DRILLED 5/6/2008 WATER LEVEL (ATD) 15.0'

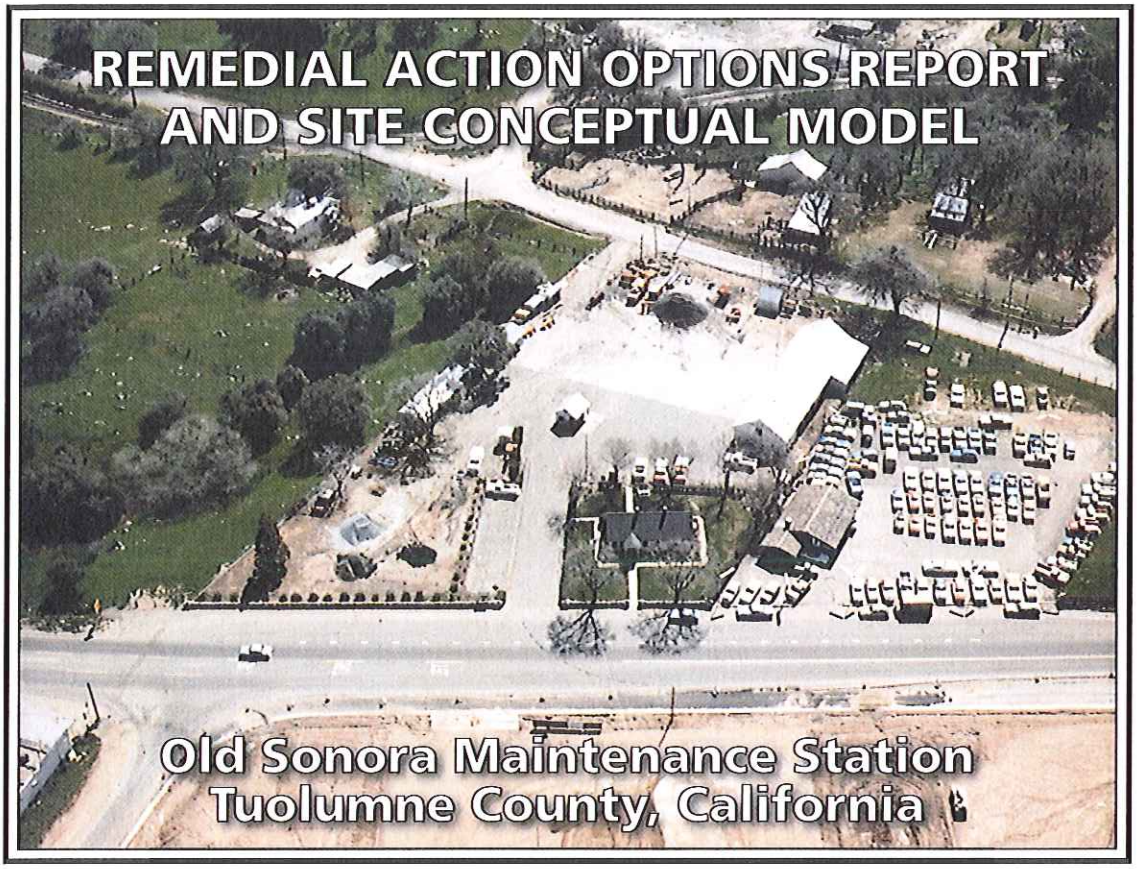
EQUIPMENT Mart M5T DRILLER Gregg

DEPTH IN FEET	PENETRAT. RESIST. BLOWS/FT.	SAMPLE NO.	LITHOLOGY	SOIL DESCRIPTION	WELL CONSTRUCTION	HEADSPACE (PPM)
26		0940		BORING TERMINATED AT 25 FEET		1.1
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						
54						

Figure 6, Log of Boring MW17, page 2 of 2

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

REMEDIAL ACTION OPTIONS REPORT AND SITE CONCEPTUAL MODEL



Old Sonora Maintenance Station
Tuolumne County, California

PREPARED FOR:

CALIFORNIA DEPARTMENT OF TRANSPORTATION – DISTRICT 6
HAZARDOUS WASTE BRANCH
2015 E. SHIELDS AVENUE, SUITE 100
FRESNO, CALIFORNIA 93726

Caltrans

PREPARED BY:

GEOCON CONSULTANTS, INC.
3160 GOLD VALLEY DRIVE, SUITE 800
RANCHO CORDOVA, CALIFORNIA 95742

GEOCON

GEOCON PROJECT NO. S9200-06-56
TASK ORDER NO. 56, EA 10-0P6700

FEBRUARY 2009

GEOCON
CONSULTANTS, INC.
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. S9200-06-56
February 9, 2009

Mr. Terrence Fox
California Department of Transportation - District 6
Hazardous Waste Branch
2015 E. Shields Avenue, Suite 100
Fresno, California 93726

Subject: OLD SONORA MAINTENANCE STATION
785 MONO WAY
TUOLUMNE COUNTY, CALIFORNIA
CONTRACT NO. 06A1141
TASK ORDER NO. 56, EA NO. 10-0P6700
REMEDIAL ACTION OPTIONS REPORT AND SITE CONCEPTUAL MODEL

Dear Mr. Fox:

In accordance with the California Department of Transportation Contract No. 06A1141, Task Order No. 56, we have prepared this Remedial Action Options Report (RAOR) and Site Conceptual Model (SCM) for the Old Sonora Maintenance Station (the Site) located at 785 Mono Way in Sonora, Tuolumne County, California. The RAOR and SCM summarize the results of the assessment completed at the Site to date and evaluate potential remedial treatment technologies applicable to the identified petroleum hydrocarbon impacts remaining at the Site.

Please contact us if there are any questions concerning the contents of this Report or if we may be of further service.

Sincerely,

GEOCON CONSULTANTS, INC.

Rebecca L. Silva, REA
Project Manager

Kevin J. Brown, PG
Senior Hydrogeologist

PROFESSIONAL GEOLOGIST
KEVIN J. BROWN
NO. 7101
01/31/11
STATE OF CALIFORNIA

RLS:KJB:jaj

(2 + 1 CD) Addressee

TABLE OF CONTENTS

REMEDIAL ACTION OPTIONS REPORT AND SITE CONCEPTUAL MODEL

FIGURES

TABLES

APPENDICES

REMEDIAL ACTION OPTIONS REPORT AND SITE CONCEPTUAL MODEL

1.0 BACKGROUND

1.1 Site Location

The Site consists of the closed California Department of Transportation (Caltrans) Sonora Maintenance Station (the Site) located at 785 Mono Way in Sonora, Tuolumne County, California. Structures at the Site include a truck shed, blacksmith shop and office/bunkhouse. The approximate site location is depicted on the Vicinity Map, Figure 1. The approximate project boundaries and existing site features are depicted on the Site Plan, Figure 2.

1.2 Background

Four underground storage tanks (USTs) were reportedly removed from the Site in July 1986. The former UST locations are depicted on Figures 2 and 3. Four soil samples (RD-1-1 through RD-4-1) were reportedly collected from beneath the former UST locations; however, exact sample locations were not reported. Total petroleum hydrocarbons as gasoline (TPHg) ranging from 33,000 to 130,000 milligrams per kilogram (mg/kg) were reported for the three soil samples collected from beneath the USTs in the central portion of the Site, and TPHg at 70 mg/kg was reported for the soil sample collected from the former UST in the southeastern corner of the Site (now beneath Greenley Road). Soil sample results from the UST excavation activities are presented on Table 1.

Between 1987 and 1991, 18 soil borings (E-1 through E-14 and AB-3 through AB-6) and eight groundwater monitoring wells (MW-1 through MW-8) were advanced to evaluate the extent of subsurface soil and groundwater impacts beneath and adjacent to the Site. Based on borings logs, it appears that the 1986 UST excavation extended to depths between 7 and 12 feet. TPHg and total petroleum hydrocarbons as diesel (TPHd) were reported for the soil samples collected from the borings up to 2,300 and 4,000 mg/kg, respectively. Soil samples were not collected from borings AB-3 through AB-6. TPHg and BTEX were not reported at concentrations greater than their respective MRLs for the grab groundwater samples collected from AB-3 through AB-6. Between 1987 and 1991, TPHg and TPHd up to 26,000 (MW-7) and 3,000 (MW-1, MW-2 and MW-4 – reported as total recoverable petroleum hydrocarbons) micrograms per liter (µg/l), respectively, were reported for groundwater samples collected from the eight monitoring wells. Groundwater was encountered at depths between 10.5 and 18.5 feet. Groundwater flow was consistently directed toward the southeast. The soil boring and groundwater monitoring well locations are depicted on Figure 2 and Figure 3, Excavation and Historical Soil Boring Location Map. Soil sample results from the borings and well installations are presented on Tables 1 and 2. Boring logs are included in Appendix A. Groundwater results for grab samples AB-3 through AB-6 and wells MW-1 through MW-8 are presented on Table 3.

In September 1993, four onsite and two offsite monitoring wells (MW-1 and MW-3 through MW-7) and one onsite domestic well were abandoned by pressure grouting in accordance with requirements of the Tuolumne County Department of Environmental Health (TCDEH). Excavation activities subsequently commenced for the Greenley Road Extension on the eastern portion of the Site including relocating the site boundary approximately 60 feet west of the original site boundary. Approximately 4,200 cubic yards of impacted soil were excavated from the Greenley Road right-of-way to depths reaching 25 feet. Residual TPHg and TPHd concentrations up to 110 and 240 mg/kg, respectively, were reported for soil samples collected within the Greenley Road right-of-way. Residual TPHg and TPHd concentrations up to 240 and 150 mg/kg, respectively, were reported within the remaining site boundary at a depth of 9 feet. The area of the Site affected by the Greenley Road extension is depicted on Figure 3.

Between 1996 and 2001, wells MW-2 and MW-8 were sampled quarterly. TPHg, TPHd and benzene were not reported at concentrations equal to or greater than their respective laboratory method reporting limits (MRLs) in each of the groundwater samples collected, with the exception of TPHd concentrations of 80 µg/l and 3,000 µg/l reported for well MW-2 in April 1996 and July 1999, and 130 µg/l reported for well MW-8 in November 1996. Methyl tert-butyl ether (MTBE) was reported for well MW-8 at the MRL of 0.6 µg/l in November 1996 and September 1997. MTBE was reported for well MW-2 at concentrations ranging from 2.2 to 48 µg/l. During groundwater monitoring performed in June 2001, TPHg, TPHd, benzene, toluene, ethylbenzene and total xylenes (BTEX) were not reported at concentrations equal to or greater than their respective MRLs. MTBE was reported for the sample from well MW-2 at 48 µg/l. Groundwater results for wells MW-2 and MW-8 are presented on Table 3.

In March 2001, a Final Request for Closure Report was submitted to the Central Valley Regional Water Quality Control Board (CVRWQCB) due to the lack of MTBE reported for downgradient well MW-8. In order to continue the closure process, the CVRWQCB requested drilling of an additional soil boring and performance of one additional round of groundwater monitoring before well abandonment.

On April 3, 2002, Geocon collected a sample from well MW-2. The well box for MW-8 was damaged and could not be accessed. TPHg, MTBE, tert-amyl methyl ether (TAME) and tert-butanol (TBA) were reported in the groundwater sample collected from well MW-2 at respective concentrations of 65, 110, 1.8 and 38 µg/l. TPHd and BTEX were not reported at concentrations equal to or greater than their respective MRLs. Historical groundwater monitoring data for wells MW-1 through MW-8 is presented on Table 3.

On April 4, 2002, Geocon advanced one soil boring (B-1) and abandoned wells MW-2 and MW-8 by pressure grouting in accordance with TCDEH permit requirements. TBA, TAME and MTBE were reported for the grab groundwater sample collected from boring B-1 at respective concentrations of 22, 0.9 µg/l and 83 µg/l. Results of the grab groundwater sampling are presented on Table 3.

Based on the presence of fuel oxygenate compounds (FOCs) in the grab groundwater sample, the CVRWQCB required the installation of additional groundwater monitoring wells. Seven groundwater monitoring wells (MW-9 through MW-15) were installed at onsite and offsite locations in 2002 and 2003. Monitoring well locations are depicted on Figure 2. Benzene and MTBE were reported for the soil samples from 13 and 18 feet in boring MW-9 (B-9) up to 9.9 and 8.7 micrograms per kilogram (µg/kg), respectively. TPHg, TPHd and benzene were reported for a soil sample from 10 feet in boring MW-10 (B-10) at respective concentrations of 5,400 mg/kg, 370 mg/kg and 19,000 µg/kg. Petroleum hydrocarbons were not reported for the soil samples collected from borings MW-11 through MW-15 with the exception of low level TPHg, toluene, total xylenes and MTBE concentrations reported for the samples from boring MW-11 (B-11). Soil sample results for the borings/wells are presented on Tables 1 and 2. Wells MW-9 through MW-12 have been sampled since October 2002, and wells MW-13 through MW-15 have been sampled since December 2003. TPHg and TPHd up to 140,000 and 54,000 µg/l (MW-10, October 2002) have been reported for the groundwater samples collected from wells MW-9 through MW-15. TPHg and TPHd concentrations up to 58,000 and 3,900 µg/l (MW-10) were reported for the monitoring event conducted in December 2008. Groundwater results for the December 2008 monitoring event are depicted on Figure 4, Petroleum Hydrocarbons in Groundwater – December 2008. Groundwater Monitoring Data for wells MW-9 through MW-15 is presented on Table 4. Boring logs are included in Appendix A. Attempts to locate well MW-14 since May 2005 have been unsuccessful; it appears to be located beneath a retaining wall.

Groundwater samples were analyzed for sulfate, nitrate, dissolved iron, dissolved manganese and methane to evaluate remediation by natural attenuation (RNA) during six groundwater monitoring events conducted between March 2007 and May 2008. Field measurements including dissolved oxygen, oxidation reduction potential and pH were also collected. The historical RNA data collected for the Site suggests that active biodegradation of petroleum hydrocarbons through natural attenuation is occurring. A summary of the RNA data collected for the Site is presented on Table 5.

Additional investigation, consisting of the drilling of eight hollow-stem auger borings (GS1 through GS8) for the collection of grab groundwater samples, was performed on January 9 and 10, 2008, to evaluate the potential presence of petroleum hydrocarbons in groundwater along Greenley Road, Sanguinetti Road and Old Wards Ferry Road downgradient of well MW-15. Borings GS1 through GS8 are depicted on Figures 2 and 4. TPHg, TPHd, BTEX and MTBE were not reported at concentrations greater than their respective MRLs for each of the soil samples collected from the eight borings. TPHg was reported for three of the seven grab groundwater samples at concentrations up to 210 µg/l (GS5). TPHd was reported for five of the seven grab groundwater samples at low level concentrations up to 110 µg/l (GS1). BTEX compounds were not reported at concentrations greater than their respective MRLs for the grab groundwater samples. MTBE was reported for five of the seven samples at

concentrations up to 160 µg/l (GS5). Results of the 2008 grab groundwater sampling activities are presented on Table 6.

Based on the results of the January 2008 investigation, we installed two groundwater monitoring wells (MW-16 and MW-17) at the Site in May 2008. TPHg, TPHd, BTEX and MTBE were not reported at concentrations greater than their respective MRLs for the four soil samples analyzed from borings MW-16 and MW-17. TPHg and TPHd were reported for the groundwater sample from downgradient well MW-16 at respective concentrations of 55 and 250 µg/l. TPHg, TPHd and MTBE were reported for the groundwater sample from crossgradient to upgradient well MW-17 at respective concentrations of 130, 92 and 110 µg/l. During the December 2008 groundwater monitoring event, TPHg, benzene and MTBE were not reported for downgradient well MW-16. A near MRL concentration of 61 µg/l TPHd was reported for the sample from well MW-16 in December 2008. TPHg, TPHd and MTBE were reported for the sample from well MW-17 in December 2008 at respective concentrations of 140, 74 and 150 µg/l. Groundwater monitoring results for wells MW-16 and MW-17 are presented on Table 4. Boring logs are included in Appendix A. The approximate locations of wells MW-16 and MW-17 are depicted on Figure 2.

2.0 SITE GEOLOGY AND HYDROGEOLOGY

According to the *Geologic Map of the San Jose Sheet*, prepared by the California Division of Mines and Geology dated 1966, the Site is located within the Sierra Nevada Mountains, approximately 49 miles east of Stockton and approximately 74 miles southeast of Sacramento. The Site is located approximately 0.6 mile east of a strand of the potentially active Melones fault, approximately 6 miles southwest of the inactive Shoo Fly Thrust and approximately 64 miles west-southwest of the active Robinson Creek fault. Surficial soils are generally comprised of compacted fill overlying sand underlain by Cretaceous Period granodiorite.

During drilling activities at the Site, an upper soil layer extending to depths of 1 to 8 feet was encountered overlying granitic bedrock extending as deep as 35 feet. The upper soil layer consists of silty sand or clayey sand near the surface grading to a dense, partly disintegrated granodiorite excavating to sand and silty sand. Geologic Cross-Sections are presented as Figures 5 and 6.

Groundwater beneath the Site is present under unconfined piezometric surface conditions. During the Fourth Quarter – 2008, depth to groundwater at the Site ranged from 7.60 (MW-15) to 22.18 (MW-13) feet below top of casing (TOC). Based on the Fourth Quarter – 2008 groundwater elevation data, the groundwater flow is toward the southeast at an average gradient of 0.037. The southeast groundwater flow direction is consistent with those recorded for the Site since monitoring began in 1987. Comprehensive tables of the TOC elevations, depth to groundwater measurements and groundwater elevations are presented on Tables 3 and 4. Groundwater elevation contours, flow direction and

gradient as measured during the Fourth Quarter – 2008 are depicted on Figure 7, Groundwater Elevation Map – December 2008.

3.0 SITE CONCEPTUAL MODEL

Generalized Site Conceptual Models depicting the Site conditions as viewed looking southwest and northwest are presented on Figures 8 and 9, respectively. Soil boring logs for each boring and monitoring well advanced at the Site to date are included in Appendix A. As shown on Figure 8, when viewing the Site looking southwest, residual hydrocarbons are present beneath the former UST excavation from a depth of 7 feet extending vertically downward approximately 8 feet into groundwater. The hydrocarbon-impacted soil extends laterally approximately 90 feet south toward well MW-10 residing in capillary fringe and saturated soils. With the possible exception of the impacts reported for groundwater samples from well MW-17, the dissolved hydrocarbon groundwater plume appears to be sourced from the former UST locations, and extends approximately 270 feet south and southeast (downgradient) beyond wells MW-9, MW-10 and MW-15. Well MW-17 is located crossgradient to upgradient of the former UST locations, which suggests that groundwater impacts at this location may be originating from an offsite source.

As shown on Figure 9, when viewing the Site looking northwest, previously identified soil impacts in the vicinity of the former UST location were excavated for the Greenley Road extension. The lateral extent of the dissolved hydrocarbon groundwater plume extends from the western portion of the Site near well MW-13 approximately 175 feet east beneath Greenley Road.

3.1 Site Conceptual Exposure Model

A Site Conceptual Exposure Model depicting the source of contamination and methods of transport is depicted on Figure 10. The only two potentially complete pathways to receptors are impacted groundwater to nearby water wells and inhalation of vapors to future onsite workers from the petroleum hydrocarbon-impacted subsurface soil and dissolved groundwater plume. A domestic well is located onsite; however, it is currently not in use and is located upgradient of the groundwater plume. Based on the well's location and lack of use, this pathway is considered incomplete. The inhalation pathway is further considered incomplete as the Site is currently vacant. For potential future workers in the blacksmith shop (the building located nearest to the groundwater plume), this pathway is considered generally incomplete as the concrete slab floor of the blacksmith shop would minimize the vertical migration of vapors into the building and any vapors migrating outside of the building would likely dissipate prior to reaching the workers' breathing zone.

4.0 DATA EVALUATION AND DISCUSSION

4.1 Petroleum Hydrocarbons in Soil

Historical data obtained from the soil samples collected at the Site show there is a limited amount of residual petroleum hydrocarbons in the unsaturated subsurface soil at the Site. The hydrocarbons are primarily TPHg and TPHd and are located directly beneath the former UST locations from depths of approximately 7 to 15 feet (the approximate groundwater surface). TPHg was reported at concentrations up to 130,000 mg/kg (RD-3-1) for soil samples collected from depths of 5 to 8 feet beneath the USTs when they were removed in 1986, and it appears that overexcavation of the USTs was conducted to depths of 7 to 12 feet. TPHg and TPHd were reported at concentrations up to 1,200 mg/kg (E-9 at 9 feet and E-10 at 8 feet) and 2,900 mg/kg (E-10 at 8 feet) from soil borings collected from the UST excavation area in 1988. Elevated hydrocarbons were also reported for soil samples collected from boring E-11 and well MW-7; however, these impacts were removed during excavation activities for the Greenley Road extension. TPHg and benzene were not reported for additional offsite borings. Soil impacts in the capillary fringe and saturated soil are present to the south of the UST excavation area extending to well MW-10. MTBE was not reported for each of the soil samples analyzed.

4.2 Petroleum Hydrocarbons in Groundwater

The groundwater beneath the Site is impacted with TPHg, TPHd, benzene and MTBE. The greatest concentrations of TPHg, TPHd and benzene are currently reported for wells MW-9 and MW-10, located approximately 50 to 90 feet downgradient of the former UST excavation. TPHg concentrations for the samples from wells MW-9 and MW-10 during the groundwater monitoring event performed in December 2008 were 40,000 and 58,000 µg/l, respectively, with respective TPHd concentrations of 3,100 and 3,900 µg/l. Benzene concentrations reported for wells MW-9 and MW-10 in December 2008 were 630 and 2,300 µg/l, respectively.

The greatest concentrations of MTBE are currently reported for downgradient wells MW-9 and MW-15 and crossgradient to upgradient well MW-17. MTBE concentrations for wells MW-9, MW-15 and MW-17 were 160, 220 and 150 µg/l in December 2008. TPHg, benzene and MTBE were not reported for downgradient well MW-16 in December 2008. A near MRL concentration of 61 µg/l TPHd was reported for the sample from well MW-16 in December 2008. The presence of MTBE in crossgradient to upgradient well MW-17 at 150 µg/l, nearly as high as the concentration reported for the sample from downgradient well MW-15 (220 µg/l), suggests that MTBE at this location may be originating from an offsite source. TPHg, TPHd, benzene and MTBE concentrations for the Fourth Quarter – 2008 groundwater monitoring event are depicted on Figure 4.

5.0 DISCUSSION OF REMEDIAL OPTIONS

5.1 Soil Remediation

Environmental studies performed at the Site show that residual petroleum hydrocarbons, most notably TPHg, remain in soils at depths between 7 and 15 feet beneath the former UST excavation and are further located in the capillary fringe and saturated soil to the south and southeast of the former UST location extending to well MW-10. Presented below are discussions of typical soil remedial options for sites impacted with TPHg.

5.1.1 No Remediation Alternative

Because the TPHg-impacted soil beneath the Site is in periodic seasonal contact with groundwater, there exists continued potential for leaching of TPHg from soil to groundwater. Such leaching could further degrade the current groundwater quality and contribute to potential downgradient groundwater plume expansion. Due to the potential for continued leaching of TPHg to groundwater beneath the Site, the "no remediation" alternative will not be given further consideration.

5.1.2 Excavation and Offsite Disposal

Excavation and offsite disposal is an effective remedial alternative for TPHg-impacted soils. This option can be cost-effective when volumes are reasonable and the contaminated property/soils are reasonably accessible. This alternative is often favored over other options because it physically removes the contaminated soil from the property rather than using engineering to transfer the contamination from one media to another. However, this alternative is not as cost-effective for deeper-impacted or saturated soils where additional engineering controls and/or dewatering can add significant expense.

This alternative would not be practical for the Site because the majority of the impacted soil is located 7 to 15 feet beneath "clean" un-impacted soils and primarily in the capillary fringe and saturated soils. Thus, this option is not given further consideration for the TPHg-impacted soils remaining at the Site.

5.1.3 Onsite Soil Aeration/Bioremediation, Offsite Soil Treatment

These options would require the direct excavation of soil and are not feasible for the TPHg-impacted soils for the same reasons presented in Section 5.1.2.

5.1.4 In-Situ Bioremediation

The design of an in-situ soil bioremediation system typically includes provisions for the injection of air, water and/or nutrients into the contaminated soil for the purpose of enhancing the biological growth of naturally occurring microorganisms. This technology can be effective in cases where excavation is not practical and large volumes remain to be treated, and it is commonly employed for sites with

heavier hydrocarbon contamination not amenable to volatilization (diesel, motor oil, etc). The effectiveness and costs of this technology are largely dependent on soil type (permeability) and the ability to deliver the injected media to the contaminated area of interest. Contaminant concentration is also a consideration so as not to be too toxic to support colonization of the microorganisms.

This technology could be effective for the Site but may be limited due to the nature of the weathered bedrock beneath the Site. Furthermore, it would likely be more expensive to implement and slower in reducing the contaminant mass than soil vapor extraction (SVE) which has proven to be highly effective. Multiple wells and likely multiple applications would be necessary to effectively treat the affected area. In addition, since these soils are in contact with groundwater, injection into these soils could encourage an increase in the rate of leaching to groundwater. Therefore, this option is not given further consideration.

5.1.5 Soil Vapor Extraction

SVE has proven to be one of the most successful in-situ soil treatment technologies for the removal of volatile compounds such as TPHg and BTEX from soil, providing that in-situ soil permeabilities are adequate and that estimated daily mass extraction rates are sufficient to warrant the capital expense of such systems. In some cases where SVE air flow contacts groundwater, varying degrees of groundwater restoration can also occur.

An SVE pilot test has not been performed to evaluate if this method would be effective at the Site. A pilot test would be necessary to estimate daily mass removal rates and radius of influence of the SVE system. SVE has been retained as a potentially feasible alternative for remediation of soil impacts at the Site.

5.2 Groundwater Remediation

Common remedial technologies for groundwater impacted with petroleum hydrocarbons include groundwater extraction and aboveground treatment (pump and treat), in-situ bioremediation, air-sparging, natural attenuation by intrinsic bioremediation and chemical oxidation. Dual-phase extraction (groundwater pumping concurrent with SVE) can also be effective for sites with extensive residual contamination in the capillary fringe and saturated zones.

Pump and treat technology was the most commonly employed groundwater remediation alternative when UST corrective actions were first mandated in the early 1980s. Recently, pump and treat systems have made a comeback based on their effectiveness for the removal of MTBE. In-situ bioremediation, which employs groundwater extraction and re-injection combined with the addition of microorganisms and nutrients to the injected groundwater, has also been proven to be an effective remediation alternative. Air-sparging combined with SVE (to capture organics stripped from the groundwater) can

also be an effective groundwater restoration method and, with respect to cost, is currently viewed as an attractive alternative to groundwater remediation technologies requiring the extraction of groundwater. Possible natural attenuation mechanisms for groundwater include (1) biological processes such as aerobic or anaerobic biodegradation; (2) physical phenomena such as dispersion, volatilization, and sorption; and (3) chemical reactions such as hydrolysis and dehydrohalogenation. Chemical oxidation consists of the in-situ introduction of chemical oxidants such as hydrogen peroxide or ozone into the impacted area through a network of injection wells. The oxidizing chemicals reduce the petroleum hydrocarbons into simple products that biologically breakdown to carbon dioxide and water.

The following sections summarize the potential remedial alternatives for petroleum hydrocarbon-impacted groundwater.

5.2.1 No Action

No action would not include active remediation efforts, but would include continued implementation of a groundwater monitoring program, although a less frequent sampling interval could be appropriate. No action is typically appropriate if risks for reasonably foreseeable exposure scenarios are within acceptable range and there is no significant potential for other environmental impacts. Due to the elevated TPHg concentrations in wells MW-9 and MW-10, and the presence of MTBE in offsite well MW-15, the no-action scenario for groundwater is not given further consideration.

5.2.2 Natural Attenuation

Natural attenuation or intrinsic bioremediation is degradation of hydrocarbons due to biological, physical, and chemical processes. These processes can be demonstrated with a monitoring program designed to test for a series of indicator parameters some of which include dissolved oxygen (DO), nitrate, sulfate, ferrous iron, alkalinity, pH, conductivity and temperature. In groundwater, DO is a useful indicator parameter for evaluating aerobic biodegradation; whereas nitrate, sulfate and ferrous iron are useful indicator parameters for anaerobic biodegradation. Alkalinity, pH and temperature are also useful indicator parameters for evaluating geo-chemical processes signifying biodegradation in groundwater.

Natural attenuation does not include active remediation to reduce the mass of the groundwater plume, nor will it provide hydraulic containment. While the reduction of mass could reasonably be anticipated through natural processes, the rate would be slower than with an active remediation alternative (pump and treat, air-sparge and chemical oxidation). The mobility of the plume would not be controlled, but the volume would be expected to decrease with time, provided there does not remain a significant continuing source. There are no technologies or materials associated with implementation of this alternative other than those necessary to conduct groundwater monitoring. In addition, there would be no system decommissioning costs associated with this alternative other than abandonment of the monitoring wells upon obtaining site closure (a constant cost concern for any alternative).

Natural attenuation is commonly accepted as an appropriate remedial alternative for TPHg-impacted sites, particularly those lacking heavier hydrocarbon impacts (diesel, motor), significantly elevated levels of BTEX, MTBE and other FOCs, no nearby sensitive receptors and a stable and non-expanding plume. We have previously performed monitoring for natural attenuation parameters at the Site, and although the data suggests that active biodegradation of petroleum hydrocarbons through natural attenuation is occurring, based on the persistence of MTBE in samples from downgradient well MW-15, remediation by natural attenuation is not given further consideration as a primary remedial alternative for groundwater. Remediation by natural attenuation would, however, be expected to be a sufficient remedy for lower-level downgradient impacts if a more aggressive remedy is employed within the most heavily impacted portion of the plume.

5.2.3 Pump and Treat

Pump and treat has shown to be successful in providing plume hydraulic control and in retarding the lateral migration and spread of impacted groundwater. Pump and treat systems can also be effective in reducing contaminant mass dissolved in groundwater but often have a limited period of effectiveness after the initial mass reduction has been achieved. Factors that influence the feasibility and cost associated with pump and treat include (but are not limited to): (1) the flowrate of extracted groundwater required to gain hydraulic control of the plume; (2) the number and location of extraction wells required; (3) the existence of naturally occurring dissolved minerals in the groundwater; and (4) site-specific discharge points for extracted groundwater. Typically, the performance of a groundwater pump test and groundwater modeling are necessary to evaluate aquifer characteristics and determine the required number and location of extraction wells. A monitoring program is necessary to assess the effectiveness of the system.

Because the pump and treat alternative includes active remediation to reduce the mass of the groundwater plume and also provides hydraulic containment, this alternative is very effective in reducing potential exposures. Some reduction of mass is likely, the mobility would be controlled, and the volume would be expected to decrease. Capital costs associated with a pump and treat system would include a drilling contractor, consultant, and contractor to design and construct the system, and the purchase of miscellaneous treatment devices, pumps, piping, wellheads and valves. Disposal and/or re-injection of the treated water would also be required. The system would require decommissioning, and the extraction wells would require proper destruction upon completion of remediation.

The pump and treat alternative would require obtaining sewer discharge permits or other means for disposing of the treated groundwater, and this requirement can often render these systems economically unfeasible to operate; therefore, groundwater pump and treat is not given further consideration.

5.2.4 Air-sparging

Air-sparging consists of the in-situ "stripping" of volatile organics from groundwater and increasing the dissolved oxygen levels in groundwater through the direct injection of compressed air. Air-sparging is often performed in conjunction with SVE for sites with significant remaining source in the vadose zone. SVE can also provide a secondary benefit by capturing and treating off gasses created by the aerobic degradation of hydrocarbons. However, SVE is not a necessary component of air-sparging as these off gasses will commonly dissipate and naturally degrade through the unsaturated soils. A pilot study is necessary to evaluate air injection and extraction radius of influence and capture zones and to establish baseline levels of contaminants and the presence of degradation by-products such as methane and carbon dioxide. The effectiveness and cost of air-sparging is influenced by the permeability distribution of saturated zone sediments, the volatility of the compounds to be stripped from groundwater, the number and locations of air injection wells and air injection flowrate and pressure.

Air-sparging would likely be effective in reducing the contaminant mass within the groundwater plume because TPHg and benzene are amenable to volatilization and by increasing the amount of oxygen in the soil and groundwater, thereby increasing the aerobic activity and rate of natural degradation. The associated costs for an air-sparge system would be less than those of a pump and treat system because less system components are necessary and disposal and/or injection of treated water would not be required. An air-sparging pilot test has not been performed to evaluate if this method would be effective at the Site; a pilot test would be necessary to measure the radius of influence and effectiveness of the air-sparging system. Air-sparging has been retained as a potentially feasible alternative for remediation of the groundwater impacts at the Site.

5.2.5 Chemical Oxidation

Chemical oxidation using ozone-sparging is a commonly implemented process to remediate petroleum hydrocarbon impacts in groundwater. Ozone-sparging is a remedial process that consists of in-situ air-stripping with micro-encapsulated ozone and combines three processes to remediate petroleum hydrocarbon-impacted groundwater. First, air and ozone are injected directly into groundwater through specially designed spargers to create microbubbles that have a high surface area-to-volume ratio. As the microbubbles rise within a saturated column of groundwater, they extract or strip the petroleum hydrocarbons from aqueous to gas partitioning. Second, ozone contained within the bubble and a thin film around the bubble reacts to decompose the petroleum hydrocarbons into simple products: alcohol, acetate and formate. The reaction detoxifies groundwater containing TPHg and benzene without typically producing harmful by-products. However, under certain geologic conditions, ozone-sparging has the potential to create potentially harmful intermediate by-products including hexavalent chromium, bromate, formaldehyde and acetone, and this potential must be thoroughly assessed when injection is performed in the vicinity of domestic wells or other sensitive receptors. Finally, the residual oxygen from the reaction encourages bioremediation which consumes the breakdown products and converts them to carbon dioxide and water.

As with air-sparging, the effectiveness of ozone-sparging is influenced by the permeability distribution of saturated zone sediments and the volatility of the compounds to be stripped from groundwater. The associated costs for an ozone-sparging system would be less than those of a pump and treat system because less system components are necessary and disposal and/or injection of treated water would not be required. The costs would be expected to be similar to those for an air-sparging system. However, mass reduction would be more rapid using ozone-sparging, thus there is more "bang for the buck." In consideration of these factors, chemical oxidation has been retained as a potentially feasible alternative for remediation of the groundwater impacts at the Site.

6.0 CONCEPTUAL REMEDIAL APPROACH

Based on the site geology and hydrogeology, the distribution of petroleum hydrocarbons in soil and groundwater at the Site and the review of remedial technologies discussed above, we offer the following conceptual remedial approach.

6.1 Soil Remediation

Unsaturated soil impacts are present at depths between 7 and 15 feet beneath the former UST locations. SVE is the preferred alternative to treat the unsaturated soils and may also provide a secondary benefit by capturing and treating off gasses created by the aerobic degradation of hydrocarbons when using an air-sparge system. In addition, SVE has also shown to be effective for reducing dissolved hydrocarbons in groundwater when performed near the groundwater surface.

Prior to recommending a full-scale SVE system for the Site, we recommended that an SVE pilot test be performed to further evaluate its feasibility for the Site. An SVE pilot test workplan should be prepared to outline the specifics for the test. At least one SVE well should be installed within the former UST excavation in the vicinity of boring E-10. The well should be installed at least 10 feet below groundwater and in a manner that can be utilized in the full-scale system. Wells MW-9 and MW-10 may be suitable for observation wells during testing, but additional observation wells will be necessary to adequately estimate the radius of influence for the SVE system.

Estimated costs for the installation of the initial SVE and observation wells, well development, and the pilot test will be approximately $30,000 to $40,000. The cost for installation of additional SVE wells and a full-scale system is estimated at $100,000 to $125,000. This estimate includes equipment rental, power and/or natural gas, periodic carbon change outs, and operation and maintenance of the system for twelve months.

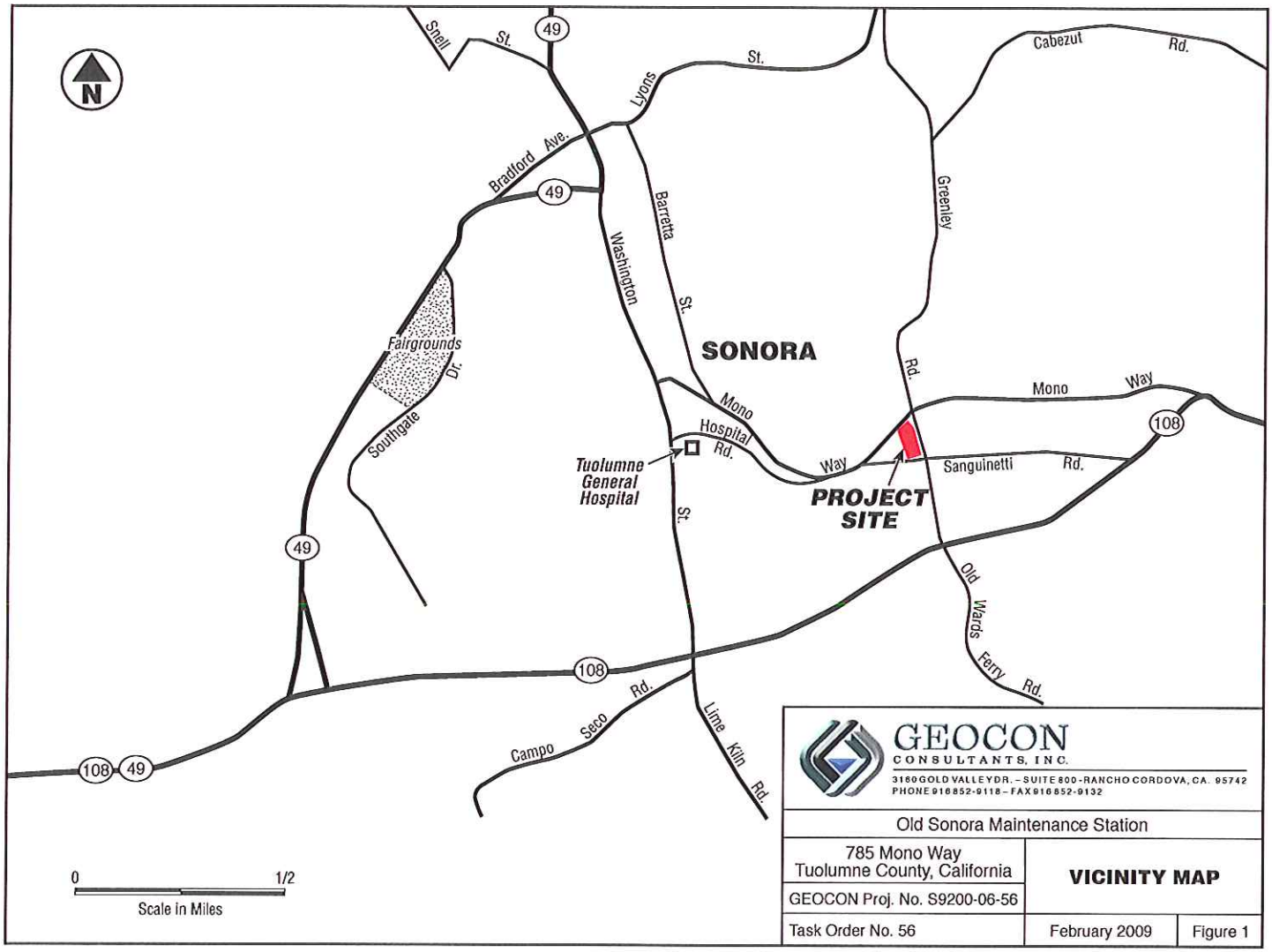
6.2 Groundwater Remediation

Because the groundwater impacts within the source area do not appear to be significantly decreasing, and MTBE has migrated more than 100 feet southeast (downgradient) of the Site, active groundwater

remediation is recommended to reduce the mass currently dissolved in the source area beneath the Site as well as downgradient and southeast of the Site. Installation of an air-sparging system is recommended as the most suitable remedial alternative for the TPHg-impacted groundwater beneath the Site. However, we recommend that the air-sparging system be designed and installed in a manner such that it can be easily converted to an ozone-injection system.

Prior to recommending a full-scale air-sparge system for the Site, it is recommended that this technology be field pilot tested to further evaluate its feasibility for the Site. It is recommended that an air-sparge pilot test workplan be prepared to outline the specifics for the test. Conceptually, at least three air-sparge wells should be installed within the hydrocarbon plume focusing on the vicinity of wells MW-9 and MW-10. This will allow for any one well to be used independently or in combination with another well for air injection while the others are used as observation wells. The wells should be installed in a manner that they can be utilized in the full-scale system or, if appropriate, an ozone-injection system. A portable skid-mounted air-sparge blower should be utilized during the test. Data obtained from the test will be used to evaluate the radius of influence for the air-sparge system and the appropriate injection pressures and flow rates.

Estimated costs for the installation of the three initial air-sparge wells, well development, and the pilot test will be approximately $40,000 to $50,000. If a pilot test for ozone injection is necessary, the approximate cost would be $25,000 to $30,000.



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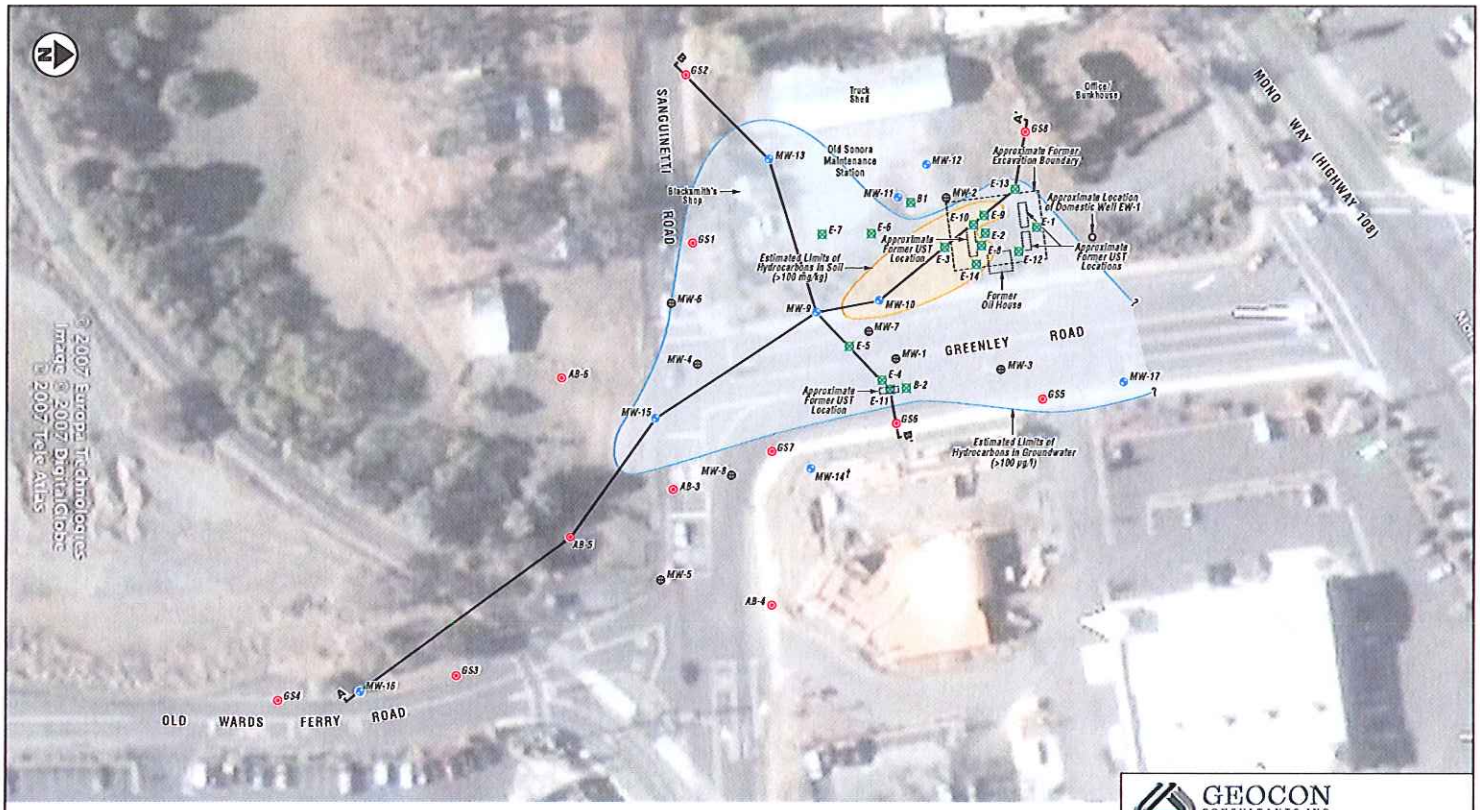
Old Sonora Maintenance Station

785 Mono Way
Tuolumne County, California

VICINITY MAP

GEOCON Proj. No. S9200-06-56

Task Order No. 56 | February 2009 | Figure 1



LEGEND:

- MW-8 Approximate Monitoring Well Location
- MW-8 Approximate Destroyed Monitoring Well Location
- GS8 Approximate Grab Groundwater Sample Boring Location
- B1 Approximate Soil Boring Location
- AST Aboveground Storage Tank
- t Well Located Beneath Retaining Wall
- A A' Approximate Cross-Section Location

0 60
Approx. Scale in Feet

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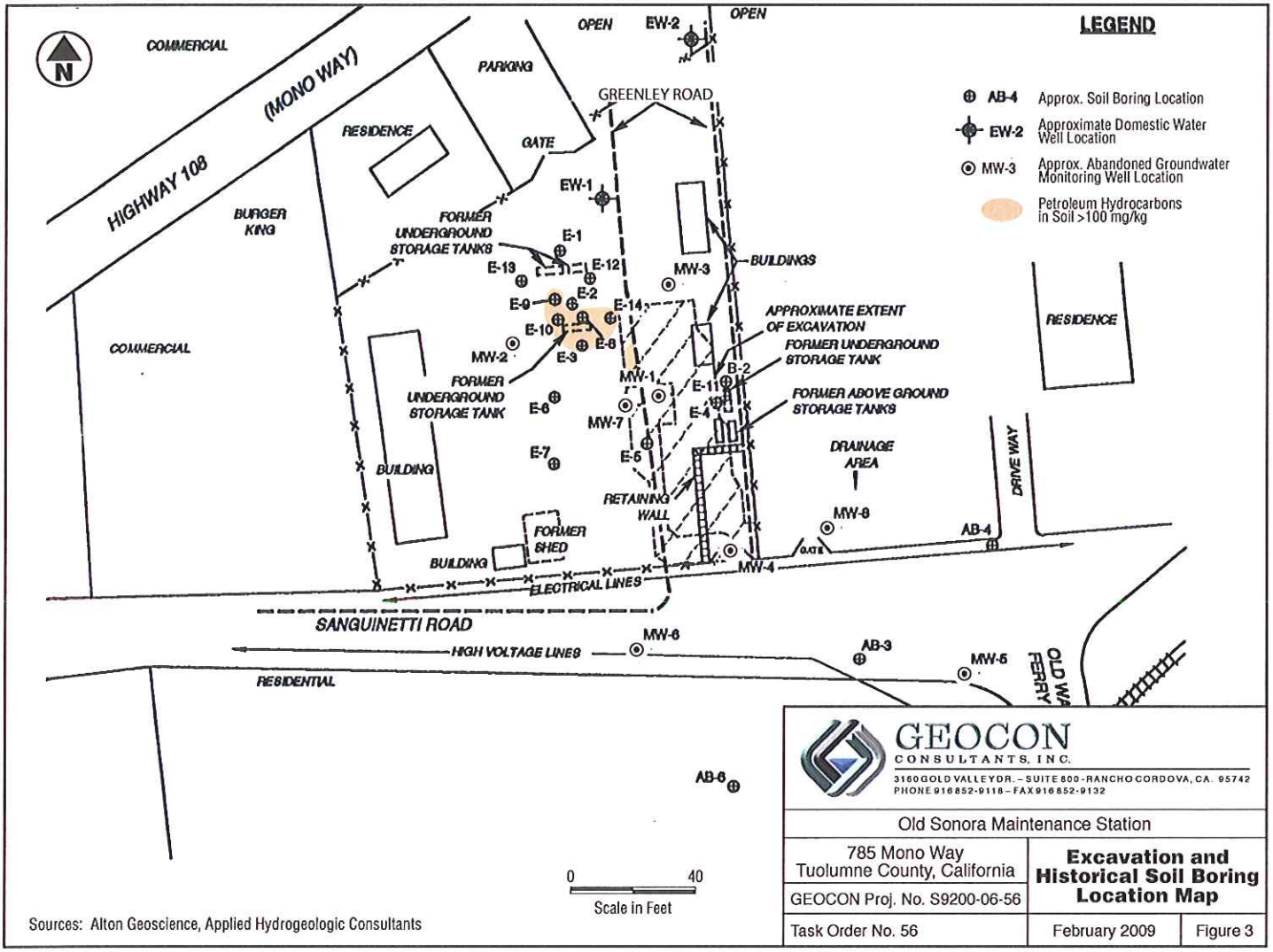
Old Sonora Maintenance Station		
785 Mono Way Tuolumne County, California	**SITE PLAN**	
GEOCON Proj. No. S9200-06-56		
Task Order No. 56	February 2009	Figure 2



Sources: Alton Geoscience, Applied Hydrogeologic Consultants

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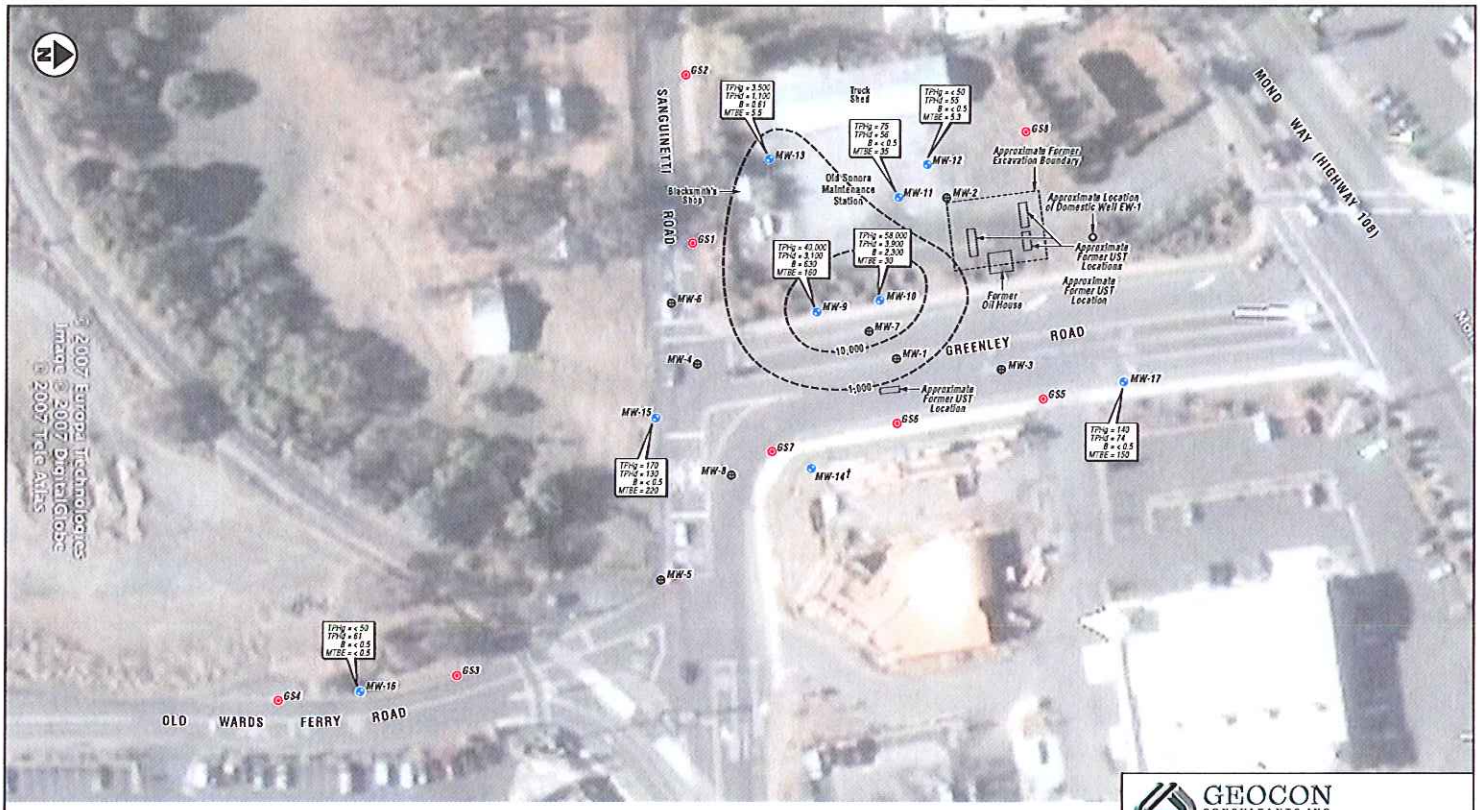
Excavation and Historical Soil Boring Location Map

GEOCON Proj. No. S9200-06-56

Task Order No. 56 | February 2009 | Figure 3



LEGEND:

- MW-9 — Approximate Monitoring Well Location
- MW-8 — Approximate Destroyed Monitoring Well Location
- GS8 — Approximate Grab Groundwater Sample Boring Location
- AST — Aboveground Storage Tank
- f — Well Located Beneath Retaining Wall
- 1,000 ------ TPH Isoconcentration Contour (ug/l)

TPHg = Total Petroleum Hydrocarbons as Gasoline (ug/l)
TPHd = Total Petroleum Hydrocarbons as Diesel (ug/l)
B = Benzene (ug/l)
MTBE = Methyl tert-Butyl ether (ug/l)

0 60
Approx. Scale in Feet

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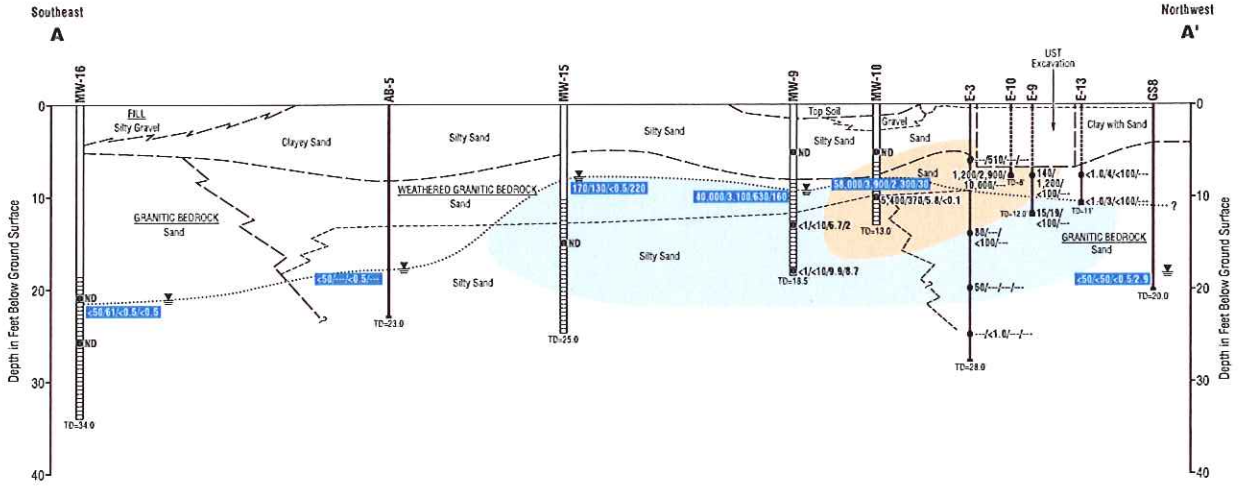
Old Sonora Maintenance Station		
785 Mono Way Tuolumne County, California	**Petroleum Hydrocarbons In Groundwater – December 2008**	
GEOCON Proj. No. S9200-06-56		
Task Order No. 56	February 2009	Figure 4



LEGEND:

MW-9 — Approximate Monitoring Well/ Soil Boring Location

Screened Interval

TD=Total Depth

— — — Approximate Geologic Contact

- - - - - - - Approximate Lithologic Contact

·····▼····· Approximate Depth to Groundwater (12/2/08)

170/130/<0.5/220 TPHg / TPHd / Benzene / MTBE Concentrations in Groundwater (µg/l) (12/2/08)

<1/<10/6.7/2 ● TPHg / TPHd / Benzene / MTBE Concentrations in Soil (mg/kg) (mg/kg) (µg/kg) (µg/kg)

Estimated Limits of Hydrocarbons in Groundwater (>100 µg/l)

Estimated Limits of Hydrocarbons in Soil (>100 mg/kg)

TPHg = Total Petroleum Hydrocarbons as Gasoline
TPHd = Total Petroleum Hydrocarbons as Diesel
MTBE = Methyl tert-butyl ether
µg/l = Micrograms per Liter
mg/kg = Milligrams per Kilogram
ND = Not Detected

Vertical Scale in Feet: 10, 0
Horizontal Scale in Feet: 0, 50

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Old Sonora Maintenance Station

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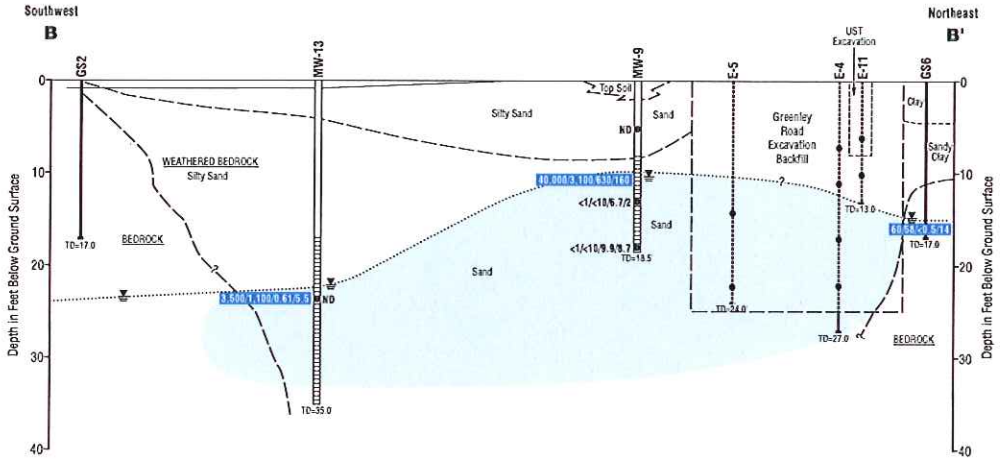
CROSS-SECTION A - A'

GEOCON Proj. No. S9200-06-56 | Task Order No. 56 | February 2009 | Figure 5



LEGEND:

MW-13 — Approximate Monitoring Well/ Soil Boring Location

Screened Interval

TD=Total Depth

Approximate Geologic Contact

Approximate Lithologic Contact

Approximate Depth to Groundwater (12/2/08)

3,500/1,100/0.61/5.5 — TPHg / TPHd / Benzene / MTBE Concentrations in Groundwater (µg/l) (12/2/08)

<1/<10/9.9/8.7 — TPHg / TPHd / Benzene / MTBE Concentrations in Soil (mg/kg) (mg/kg) (µg/kg) (µg/kg)

Estimated Limits of Hydrocarbons in Groundwater (>100 µg/l)

TPHg = Total Petroleum Hydrocarbons as Gasoline
TPHd = Total Petroleum Hydrocarbons as Diesel
MTBE = Methyl tert-butyl ether
µg/l = Micrograms per Liter
mg/kg = Milligrams per Kilogram
ND = Not Detected

Vertical Scale in Feet: 10, 0
Horizontal Scale in Feet: 0, 30

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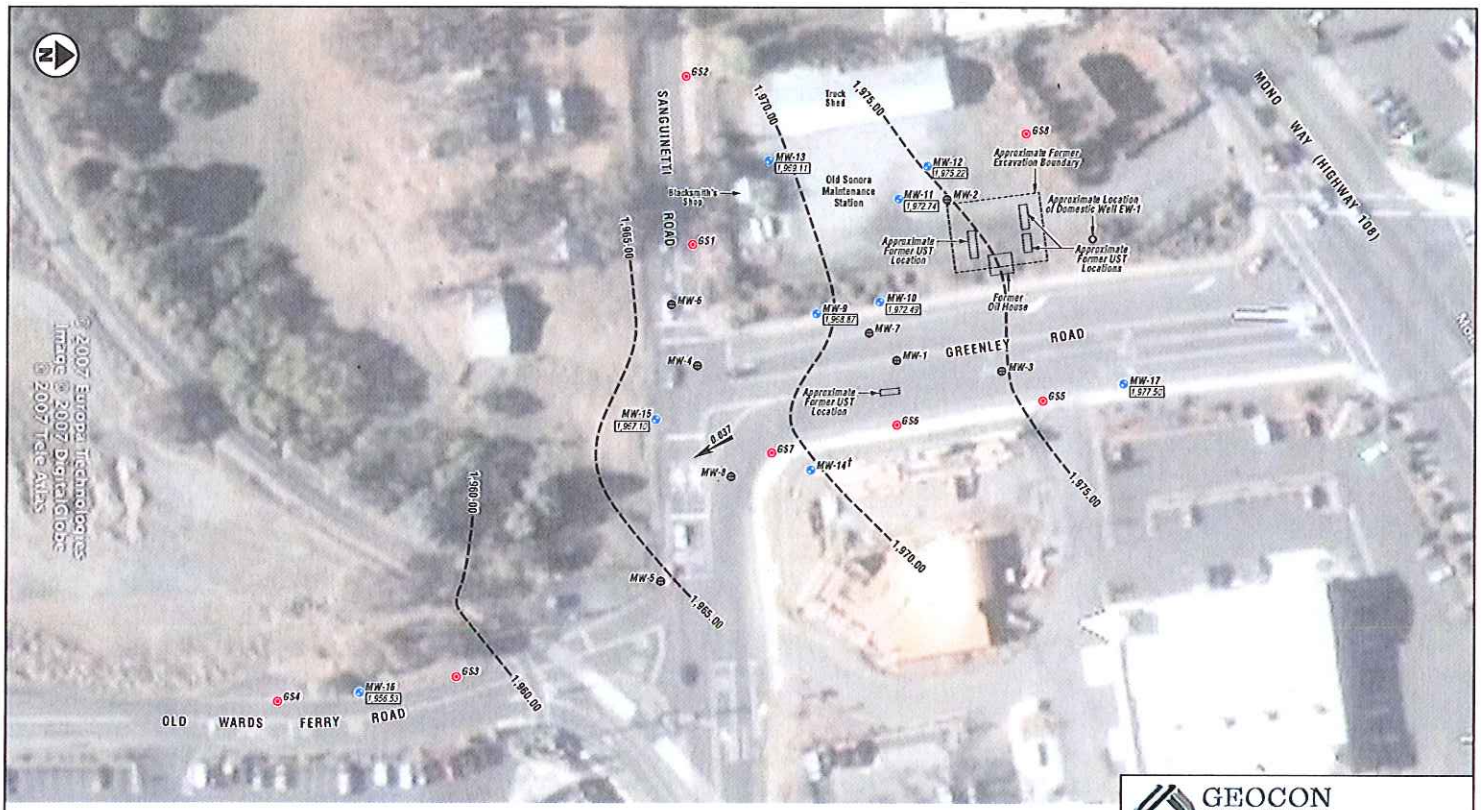
Old Sonora Maintenance Station		
785 Mono Way Tuolumne County, California	**CROSS-SECTION B – B'**	
GEOCON Proj. No. S9200-06-56		
Task Order No. 56	February 2009	Figure 6



LEGEND:

- MW-9 — Approximate Monitoring Well Location
- MW-8 — Approximate Destroyed Monitoring Well Location
- GS8 — Approximate Grab Groundwater Sample Boring Location
- AST — Aboveground Storage Tank
- † — Well Located Beneath Retaining Wall
- Groundwater Elevation Contour (Interval = 5.00 Ft.)
- 1,956.53 — MSL Elevation of Groundwater Measured on 12/2/08
- 0.037 — Approximate Groundwater Direction & Gradient

0 60
Approx. Scale in Feet

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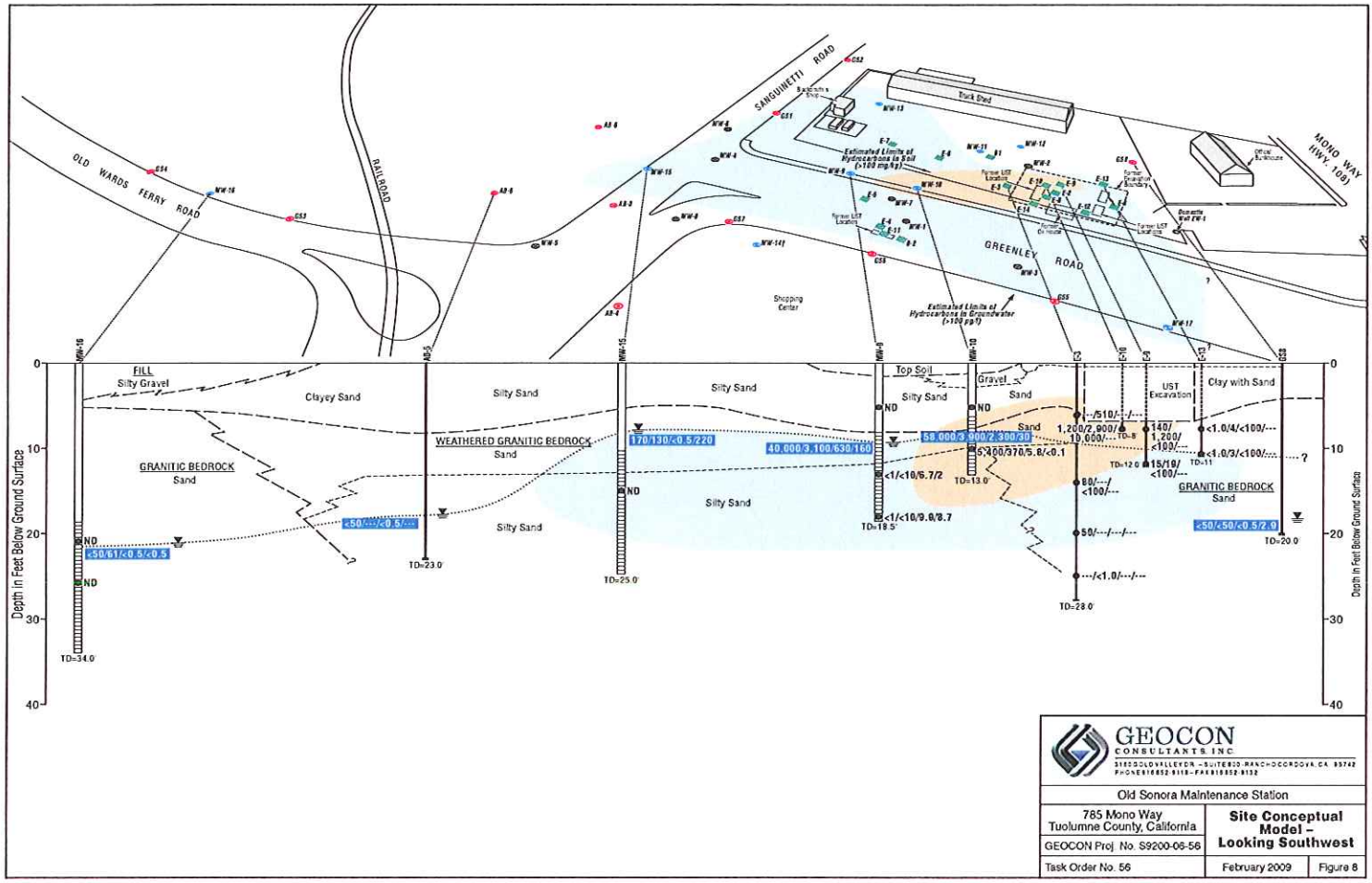
Old Sonora Maintenance Station		
785 Mono Way Tuolumne County, California		**Groundwater Elevation Map – December 2008**
GEOCON Proj. No. S9200-06-56		
Task Order No. 56	February 2009	Figure 7



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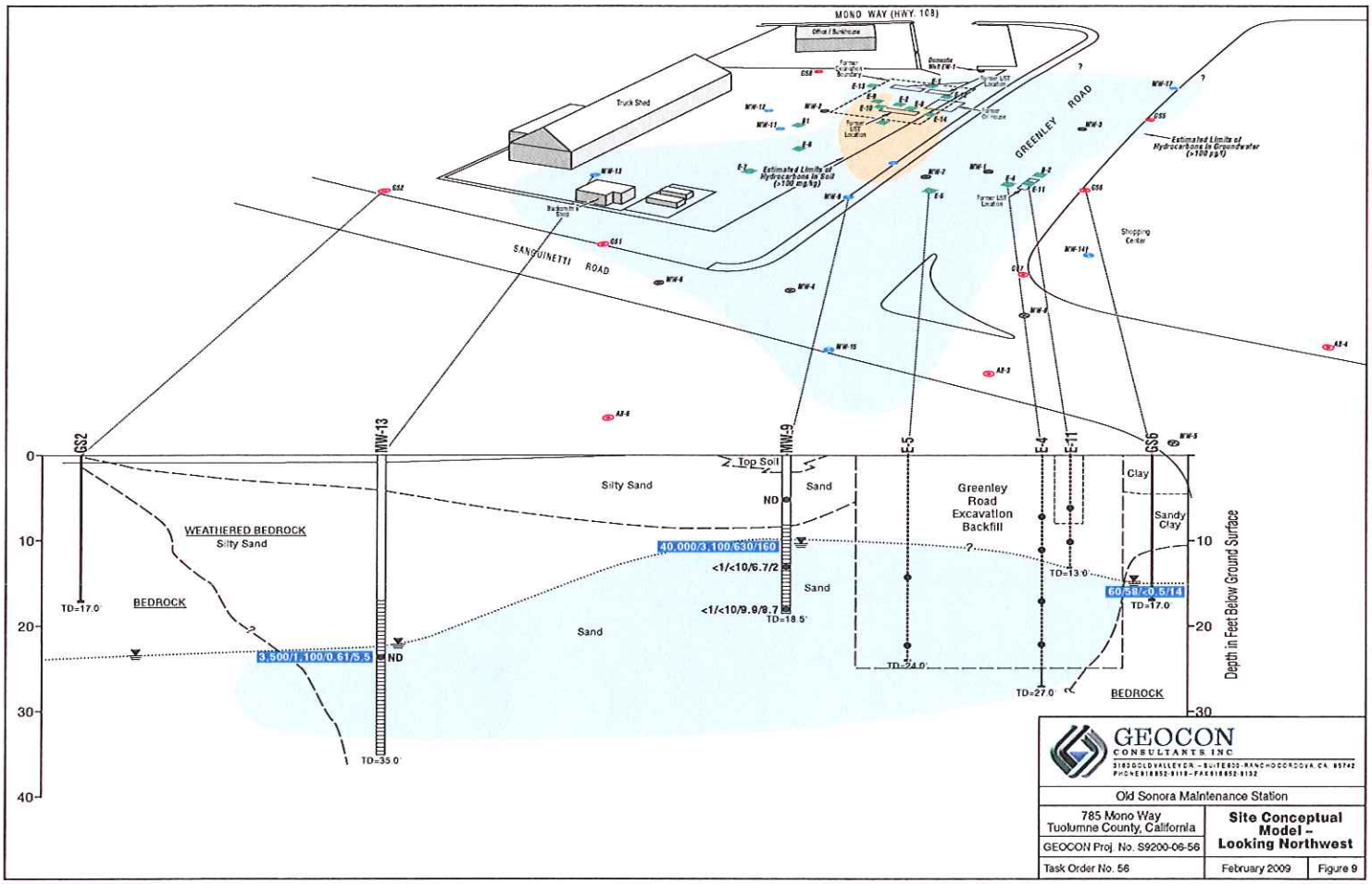
Old Sonora Maintenance Station		
785 Mono Way Tuolumne County, California		**Site Conceptual Model – Looking Southwest**
GEOCON Proj. No. S9200-06-56		
Task Order No. 56	February 2009	Figure 8



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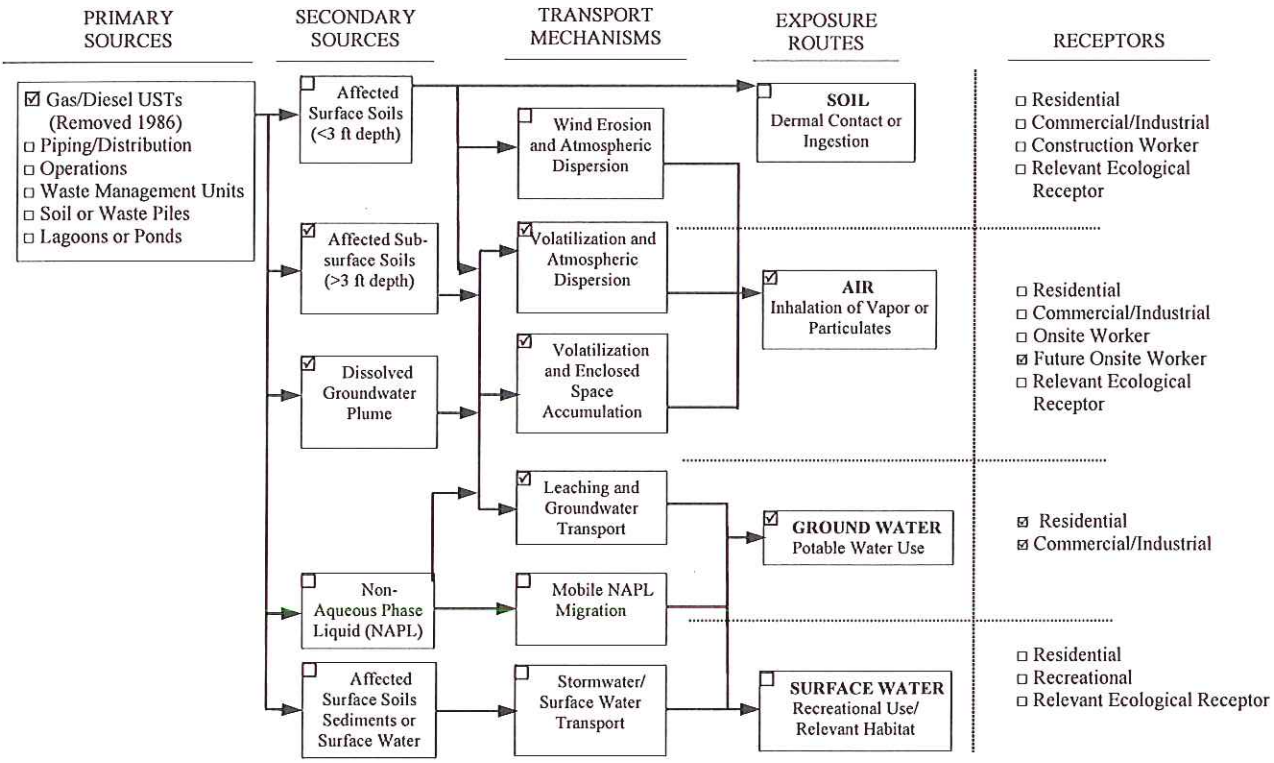
Old Sonora Maintenance Station		
785 Mono Way Tuolumne County, California	**Site Conceptual Model – Looking Northwest**	
GEOCON Proj. No. S9200-06-56		
Task Order No. 56	February 2009	Figure 9

Site Conceptual Exposure Model



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Old Sonora Maintenance Station

785 Mono Way
Tuolumne County, California

S9200-06-56	February 2009	Figure 10

TABLE 1

SUMMARY OF SOIL ANALYTICAL DATA

OLD SONORA MAINTENANCE STATION

TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TPHg (mg/kg)	TPHd (mg/kg)	B (µg/kg)	T (µg/kg)	E (µg/kg)	X (µg/kg)	MTBE (µg/kg)	Organic Lead (mg/kg)	VOCs (µg/kg)
RD-1-1	7/1/1986	33,000	—	2,000	4,000	—	7,000	—	<50	—
RD-2-1	7/1/1986	70	—	—	—	—	—	—	—	—
RD-3-1	7/1/1986	130,000	—	10,000	20,000	—	35,000	—	<50	—
RD-4-1	7/1/1986	113,000	—	11,000	23,000	—	37,000	—	<50	—
MW-1-6.0	10/3/1987	10	—	—	—	—	—	—	—	—
MW-1-18.0	10/3/1987	—	<1.0	<100	<100	<100	<100	—	<0.1	—
MW-2-18.0	10/3/1987	—	19	—	—	—	—	—	—	—
MW-3-20.0	10/3/1987	—	<1.0	<100	<100	<100	<100	—	<0.1	—
MW-4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
E-1-8.5	10/3/1987	<1.0	—	—	—	—	—	—	—	—
E-1-9.0	10/3/1987	—	<1.0	<100	<100	<100	<100	—	—	—
E-2-12.0	10/3/1987	—	27	—	—	—	—	—	—	—
E-2-19.0	10/3/1987	10	—	<100	<100	<100	<100	—	<0.1	—
E-2-25.0	10/3/1987	—	21	—	—	—	—	—	—	—
E-3-6.0	10/3/1987	—	510	—	—	—	—	—	—	—
E-3-14.0	10/3/1987	80	—	<100	200	600	4,000	—	—	—
E-3-20.0	10/3/1987	50	—	—	—	—	—	—	<0.1	—
E-3-25.0	10/3/1987	—	<1.0	—	—	—	—	—	—	—
E-4-7.0	10/3/1987	—	11	—	—	—	—	—	<0.1	—
E-4-11.0	10/3/1987	—	<1.0	—	—	—	—	—	—	—
E-4-17.0	10/3/1987	<1.0	—	—	—	—	—	—	—	—
E-4-22.0	10/3/1987	—	53	—	—	—	—	—	—	—
E-5-14.0	10/3/1987	<1.0	—	—	—	—	—	—	—	—
E-5-22.0	10/3/1987	—	<1.0	—	—	—	—	—	—	—

TABLE 1
SUMMARY OF SOIL ANALYTICAL DATA
OLD SONORA MAINTENANCE STATION
TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TPHg (mg/kg)	TPHd (mg/kg)	B (µg/kg)	T (µg/kg)	E (µg/kg)	X (µg/kg)	MTBE (µg/kg)	Organic Lead (mg/kg)	VOCs (µg/kg)
E-6-12.5	10/3/1987	<1.0	—	<100	<100	<100	<100	—	<0.1	—
E-6-25.0	10/3/1987	—	4	—	—	—	—	—	—	—
E-7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
E-8-9.0	6/29/1988	1,200	106	2,000	50,000	20,000	120,000	—	<0.1	—
E-8-15.0	6/29/1988	630	800	1,000	40,000	10,000	55,000	—	<0.1	—
E-9-8.0	6/29/1988	140	1,200	<100	<100	<100	<100	—	<0.1	—
E-9-12.0	6/29/1988	15	19	<100	<100	<100	<100	—	<0.1	—
E-10-8.0	6/29/1988	1,200	2,900	10,000	200,000	50,000	350,000	—	<0.1	—
E-11-6.0	6/29/1988	1,500	1,400	<100	<100	<100	500	—	<0.1	—
E-11-10.0	6/29/1988	2,300	4,000	<100	<100	100	200	—	<0.1	—
E-12-8.0	6/29/1988	<1.0	32	<100	<100	<100	<100	—	<0.1	—
E-13-8.0	6/29/1988	<1.0	4	<100	<100	<100	<100	—	<0.1	—
E-13-11.0	6/29/1988	<1.0	3	<100	<100	<100	<100	—	<0.1	—
E-14-10.0	6/29/1988	<1.0	127	<100	<100	<100	<100	—	<0.1	—
AB-1 (MW-5) 5.5	6/11/1991	<1.0	<1.0	<5	<5	<5	<5	—	—	—
AB-1 (MW-5) 12.5	6/11/1991	<1.0	<1.0	<5	<5	<5	<5	—	—	—
AB-1 (MW-5) 17.0	6/11/1991	<1.0	<1.0	<5	<5	<5	<5	—	—	—
AB-1 (MW-5) 20.0	6/11/1991	<1.0	<1.0	<5	<5	<5	<5	—	<0.5	—
AB-2 (MW-6) 5.5	6/11/1991	<1.0	<1.0	<5	<5	<5	<5	—	—	—
AB-2 (MW-6) 10.5	6/11/1991	<1.0	<1.0	<5	<5	<5	<5	—	<0.5	—
AB-7 (MW-7) 6.0	6/12/1991	1.6	<1.0	110	19	7.6	8.5	—	—	—
AB-7 (MW-7) 11.0	6/12/1991	2	<1.0	310	150	5.9	82	—	—	—

TABLE 1

SUMMARY OF SOIL ANALYTICAL DATA

OLD SONORA MAINTENANCE STATION

TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TPHg (mg/kg)	TPHd (mg/kg)	B (µg/kg)	T (µg/kg)	E (µg/kg)	X (µg/kg)	MTBE (µg/kg)	Organic Lead (mg/kg)	VOCs (µg/kg)
AB-7 (MW-7) 15.5	6/12/1991	1,500	110	6,900	29,000	15,000	89,000	—	—	—
AB-7 (MW-7) 20.5	6/12/1991	73	11	350	1,500	340	4,300	—	<0.5	—
AB-8 (MW-8) 5.5	6/12/1991	<1.0	<1.0	<5	<5	<5	<5	—	—	—
AB-8 (MW-8) 10.0	6/12/1991	<1.0	<1.0	<5	<5	<5	<5	—	<0.5	—
B1-18.5	4/10/2002	<0.5	<10	<5	<5	<5	<5	—/<5 [1]	—	ND
B9 (MW-9) 5.0	10/23/2002	<1	<10	<5/<1	<5/<1	<5/<1	<5/<1	<50/<1	—	—
B9 (MW-9) 13.0	10/23/2002	<1	<10	5/6.7	44/67	8/<1	28/30.2	<50/2	—	—
B9 (MW-9) 18.0	10/23/2002	<1	<10	6/9.9	7/9.3	11/13	30/27.6	<50/8.7	—	—
B10 (MW-10) 5.0	10/23/2002	<1	<10	<5/<1	<5/6.2	<5/1.6	<5/5.1	<50/<100	—	—
B10 (MW-10) 10.0	10/23/2002	5,400	370 [2]	19,000/5,800	250,000/150,000	140,000/<1,000	700,000/250,000	<50,000/<100	—	—
B11 (MW-11) 5.0	10/22/2002	<1	<10	<5/<1	<5/<1	<5/<1	<5/<1	<50/<1	—	—
B11 (MW-11) 10.0	10/22/2002	<1	<10	<5/<1	<5/<1	<5/<1	<5/<1	<50/<1	—	—
B11 (MW-11) 15.0	10/22/2002	<1	<10	<5/<1	<5/<1	<5/<1	<5/<1	<50/<1	—	—
B11 (MW-11) 20.0	10/22/2002	26	<10	<5/<1	8/<1	<5/<1	260/<1	<50/<1	—	—
B11 (MW-11) 25.0	10/22/2002	<1	<10	<5/<1	<5/<1	<5/<1	<5/<1	<50/4	—	—
B12 (MW-12) 5.0	10/22/2002	<1	<10	<5/<1	<5/<1	<5/<1	<5/<1	<50/<1	—	—
B12 (MW-12) 10.0	10/22/2002	<1	<10	<5/<1	<5/<1	<5/<1	<5/<1	<50/<1	—	—
B12 (MW-12) 15.0	10/22/2002	<1	<10	<5/<1	<5/<1	<5/<1	<5/<1	<50/<1	—	—
B12 (MW-12) 20.0	10/22/2002	<1	<10	<5/<1	<5/<1	<5/<1	<5/<1	<50/<1	—	—
MW-13-23.5	12/12/2003	<0.2	<0.1	<5	<5	<5	<5	<5	<0.5	—
MW-14-15	12/15/2003	<0.2	<0.1	<5	<5	<5	<5	<5	<0.5	—
MW-15-15	12/15/2003	<0.2	<0.1	<5	<5	<5	<5	<5	<0.5	—

TABLE 1

SUMMARY OF SOIL ANALYTICAL DATA

OLD SONORA MAINTENANCE STATION

TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TPHg (mg/kg)	TPHd (mg/kg)	B (µg/kg)	T (µg/kg)	E (µg/kg)	X (µg/kg)	MTBE (µg/kg)	Organic Lead (mg/kg)	VOCs (µg/kg)
MW-16-21	5/5/2008	<1.0	<1.0	<5.0	<5.0	<5.0	<10	<5.0	—	—
MW-16-26	5/5/2008	<1.0	<1.0	<5.0	<5.0	<5.0	<10	<5.0	—	—
MW-17-11	5/6/2008	<1.0	<1.0	<5.0	<5.0	<5.0	<10	<5.0	—	—
MW-17-16	5/6/2008	<1.0	<1.0	<5.0	<5.0	<5.0	<10	<5.0	—	—

Notes:

TPHg = Total petroleum hydrocarbons as gasoline

TPHd = Total petroleum hydrocarbons as diesel

BTEX = Benzene, toluene, ethylbenzene and total xylenes

MTBE = Methyl tert-butyl ether

VOCs = Volatile organic compounds

mg/kg = Milligrams per kilogram

µg/kg = Micrograms per kilogram

< = Less than laboratory method reporting limit

1 = Includes analyses for TAME, ETBE, DIPE and TBA.

MTBE = <0.005 mg/kg, TAME = <0.005 mg/kg, TBA = <0.050 mg/kg, ETBE = <0.005 mg/kg, DIPE = <0.005 mg/kg

2 = Atypical pattern reported by laboratory

<0.005/<0.001 = Analyses performed by EPA Test Methods 8020/8260B, respectively

TABLE 2

SUMMARY OF SOIL ANALYTICAL DATA – VOLATILE ORGANIC COMPOUNDS

FORMER SONORA MAINTENANCE STATION

TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TERT-BUTYLBENZENE (mg/kg)	TRANS-1,3-DICHLORO-PROPHENE (mg/kg)	ISO-PROPYLBENZENE (mg/kg)	P-ISOPROPYLTOLUENE (mg/kg)	NAPHTHALENE (mg/kg)	N-PROPYLBENZENE (mg/kg)	1,2,4-TRIMETHYL-BENZENE (mg/kg)	1,3,5-TRIMETHYL-BENZENE (mg/kg)
B9 (MW-9) 5.0	10/23/2002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B9 (MW-9) 13.0	10/23/2002	<0.001	0.011	<0.001	<0.001	<0.001	<0.001	0.012	<0.001
B9 (MW-9) 18.0	10/23/2002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0067	<0.001
B10 (MW-10) 5.0	10/23/2002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B10 (MW-10) 10.0	10/23/2002	2.3	6.8	8.4	2.6	28	32.0	220	62
B11 (MW-11) 5.0	10/22/2002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B11 (MW-11) 10.0	10/22/2002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B11 (MW-11) 15.0	10/22/2002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B11 (MW-11) 20.0	10/22/2002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B11 (MW-11) 25.0	10/22/2002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B12 (MW-12) 5.0	10/22/2002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B12 (MW-12) 10.0	10/22/2002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B12 (MW-12) 15.0	10/22/2002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B12 (MW-12) 20.0	10/22/2002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Notes:

mg/kg = Milligrams per kilogram

< = Less than laboratory method reporting limit

TABLE 3
SUMMARY OF HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL DATA
FORMER SONORA MAINTENANCE STATION
TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TOC ELEVATION MSL (feet)	DEPTH TO GROUNDWATER (feet)	GROUNDWATER ELEVATION MSL (feet)	TPHg (µg/l)	TRPH (µg/l)	TPHd (µg/l)	B (µg/l)	T (µg/l)	E (µg/l)	X (µg/l)	Organic Lead (µg/l)	MTBE 8020/8260 (µg/l)
MW-1	10/6/1987	1,964.97	—	—	900	—	—	5	<1.0	<1.0	<1.0	<30[1]	—
MW-1	7/1/1988	1,964.97	—	—	<1,000	3,000	—	10	<1.0	<1.0	<1.0	—	—
MW-1	6/18/1991	1,964.97	18.50	1,946.52*	—	—	—	—	—	—	—	—	—
MW-2	10/6/1987	1,967.78	16.01	1,951.77	<100	—	—	<0.7	<1.0	<1.0	<1.0	50[1]	—
MW-2	7/1/1988	1,967.78	17.79	1,949.99	<1,000	3,000	—	<0.7	<1.0	<1.0	<1.0	50[1]	—
MW-2	6/18/1991	1,967.78	17.56	1,950.22	<50	—	<50	<0.5	<0.5	<0.5	<0.5	<50	—
MW-2	4/24/1996	1,967.78	13.52	1,954.26	<50	—	80	<0.5	<0.5	<0.5	<0.5	—	—
MW-2	7/16/1996	1,967.78	14.92	1,952.86	<50	—	<50	<0.5	<0.5	<0.5	<0.5	—	—
MW-2	10/15/1996	1,967.78	16.02	1,951.76	<50	—	<50	<0.5	<0.5	<0.5	<0.5	—	3.5/—
MW-2	6/2/1997	1,967.78	14.89	1,952.89	<500	—	<500	<0.3	<0.3	<0.3	<0.6	—	3.8/<5
MW-2	9/2/1997	1,967.78	16.84	1,950.94	<500	—	<500	<0.3	<0.3	<0.3	<0.6	—	2.2/<2.5
MW-2	12/9/1997	1,967.78	17.64	1,950.14	<50	—	<5,000	<0.5	<0.5	<0.5	<1	—	<5/—
MW-2	3/6/1998	1,967.78	12.26	1,955.52	<50	—	<5,000	<0.5	<0.5	<0.5	<1	—	6/6
MW-2	5/22/1998	1,967.78	12.87	1,954.91	<500	—	<500	<0.3	<0.3	<0.3	<0.6	—	—/9.9
MW-2	9/1/1998	1,967.78	15.14	1,952.64	<500	—	<5,000	<0.3	<0.3	<0.3	<0.6	—	11/<1
MW-2	11/24/1998	1,967.78	15.24	1,952.54	<500	—	<400	<0.6	<1	<1	<3	—	9/13
MW-2	4/7/1999	1,967.78	13.25	1,954.53	<100	—	<100	<0.1	<0.2	<0.1	<0.1	—	14/—
MW-2	7/2/1999	1,967.78	14.39	1,953.39	<100	—	3,000	<0.3	<0.2	<0.2	<0.4	—	—/<0.6
MW-2	9/30/1999	1,967.78	15.22	1,952.56	<100	—	<100	<0.3	<0.2	<0.2	<0.4	—	—/<0.6
MW-2	1/12/2000	1,967.78	15.86	1,951.92	<100	—	<100	<0.3	<0.2	<0.2	<0.4	—	13/—
MW-2	3/31/2000	1,967.78	13.25	1,954.53	<100	—	<100	<0.18	<0.14	<0.18	<0.26	—	6.7/—
MW-2	6/15/2000	1,967.78	13.62	1,954.16	<100	—	<100	<0.3	<0.2	<0.2	<0.4	—	—/<0.6
MW-2	9/20/2000	1,967.78	14.61	1,953.17	<100	—	<100	<0.3	<0.2	<0.2	<0.4	—	—/<0.6
MW-2	1/2/2001	1,967.78	15.45	1,952.33	<100	—	<100	<0.3	<0.2	<0.2	<0.4	—	—/17
MW-2	3/26/2001	1,967.78	36.90	1,930.88	<50	—	<50	<0.3	<0.2	<0.2	<0.4	—	—/37
MW-2	6/11/2001	1,967.78	14.33	1,953.45	<50	—	<50	<0.3	<0.2	<0.2	<0.4	—	—/48
MW-2	4/3/2002	1,967.78	14.59	1,953.19	65	—	<100	<0.5	<0.5	<0.5	<0.5	—	110[2]
MW-3	10/6/1987	1,967.32	15.60	1,951.72	<100	—	—	<0.7	<1.0	<1.0	1,800	<30[1]	—
MW-3	7/1/1988	1,967.32	17.44	1,949.88	<1,000	1,000	—	<0.7	<1.0	<1.0	91	<20[1]	—
MW-3	6/18/1991	1,967.32	17.26	1,950.06	<50	—	<50	<0.5	<0.5	<0.5	30	<50	—

TABLE 3
SUMMARY OF HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL DATA
FORMER SONORA MAINTENANCE STATION
TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TOC ELEVATION MSL (feet)	DEPTH TO GROUNDWATER (feet)	GROUNDWATER ELEVATION MSL (feet)	TPHg (µg/l)	TRPH (µg/l)	TPHd (µg/l)	B (µg/l)	T (µg/l)	E (µg/l)	X (µg/l)	Organic Lead (µg/l)	MTBE 8020/8260 (µg/l)
MW-4	7/1/1988	1,958.43	15.75	1,942.68	<1,000	3,000	—	<0.7	<1.0	<1.0	<1.0	<20[1]	—
MW-4	6/18/1991	1,958.43	16.2	1,942.23	<50	—	<50	<0.5	<0.5	<0.5	<0.5	<50	—
MW-5	6/18/1991	1,949.14	12.53	1,936.61	<50	—	<50	<0.5	<0.5	<0.5	<0.5	<50	—
MW-6	6/18/1991	1,953.36	11.48	1,941.88	<50	—	<50	<0.5	<0.5	<0.5	<0.5	<50	—
MW-7	6/18/1991	1,965.39	18.33	1,947.06	26,000	—	<50	1,900	3,600	420	5,400	<50	—
MW-8	6/18/1991	1,952.62	10.58	1,942.04	<50	—	<50	<0.5	<0.5	<0.5	<0.5	<50	—
MW-8	11/1/1996	1,952.62	8.67	1,943.95	<50	—	130	<0.5	<0.5	<0.5	<0.5	—	0.6/—
MW-8	6/2/1997	1,952.62	6.85	1,945.77	<500	—	<500	<0.3	<0.3	<0.3	<0.6	—	<0.6/—
MW-8	9/2/1997	1,952.62	8.48	1,944.14	<500	—	<500	<0.3	<0.3	<0.3	<0.6	—	0.6/—
MW-8	12/9/1997	1,952.62	9.26	1,943.36	<50	—	<5,000	<0.5	<0.5	<0.5	<1	—	<5/—
MW-8	3/6/1998	1,952.62	3.79	1,948.83	<50	—	<5,000	<0.5	<0.5	<0.5	<1	—	<5/<5
MW-8	5/22/1998	1,952.62	4.20	1,948.42	<500	—	<500	<0.3	<0.3	<0.3	<0.6	—	—/<5
MW-8	9/1/1998	1,952.62	7.56	1,945.06	<500	—	<5,000	<0.3	<0.3	<0.3	<0.6	—	<0.6/<1
MW-8	11/24/1998	1,952.62	7.58	1,945.04	<500	—	<4,000	<0.6	<1	<1	<3	—	<1/<1
MW-8	4/7/1999	1,952.62	4.72	1,947.90	<100	—	<100	<0.1	<0.2	<0.1	<0.1	—	<0.6/—
MW-8	7/2/1999	1,952.62	6.25	1,946.37	<100	—	<100	<0.3	<0.2	<0.2	<0.4	—	—/<0.6
MW-8	9/30/1999	1,952.62	7.83	1,944.79	<100	—	<100	<0.3	<0.2	<0.2	<0.4	—	—/<0.6
MW-8	1/12/2000	1,952.62	8.83	1,943.79	<100	—	<100	<0.3	<0.2	<0.2	<0.4	—	—/<0.6
MW-8	3/31/2000	1,952.62	5.23	1,947.39	<100	—	<100	<0.18	<0.14	<0.18	<0.26	—	—/<0.6
MW-8	6/15/2000	1,952.62	5.75	1,946.87	<100	—	<100	<0.18	<0.14	<0.18	<0.26	—	—/<0.6
MW-8	9/20/2000	1,952.62	6.93	1,945.69	<100	—	<100	<0.18	<0.14	<0.18	<0.26	—	—/<0.6
MW-8	12/19/2000	1,952.62	7.97	1,944.65	<50	—	<50	<0.3	<0.2	<0.2	<0.4	—	—/<0.6
MW-8	3/26/2001	1,952.62	6.50	1,946.12	<50	—	<50	<0.3	<0.2	<0.2	<0.4	—	—/<0.6
MW-8	6/11/2001	1,952.62	7.50	1,945.12	<50	—	<50	<0.3	<0.2	<0.2	<0.4	—	—/<0.6
AB-3	6/11/1991	—	—	—	<50	—	—	<0.5	<0.5	<0.5	<0.5	—	—
AB-4	6/11/1991	—	—	—	<50	—	—	<0.5	<0.5	<0.5	<0.5	—	—

TABLE 3
SUMMARY OF HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL DATA
FORMER SONORA MAINTENANCE STATION
TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TOC ELEVATION MSL (feet)	DEPTH TO GROUNDWATER (feet)	GROUNDWATER ELEVATION MSL (feet)	TPHg (µg/l)	TRPH (µg/l)	TPHd (µg/l)	B (µg/l)	T (µg/l)	E (µg/l)	X (µg/l)	Organic Lead (µg/l)	MTBE 8020/8260 (µg/l)
AB-5	6/12/1991	—	—	—	<50	—	—	<0.5	<0.5	<0.5	<0.5	—	—
AB-6	6/12/1991	—	—	—	<50	—	—	<0.5	<0.5	<0.5	<0.5	—	—
GW-B1	4/10/2002	—	—	—	<50	—	<100	<0.5	<0.5	<0.5	<0.5	—	—/83 [3]

Notes:
Each of the wells referenced on this table has been destroyed.
MSL = Mean sea level
TPHg = Total petroleum hydrocarbons as gasoline
TRPH = Total recoverable petroleum hydrocarbons
TPHd = Total petroleum hydrocarbons as diesel
BTEX = Benzene, toluene, ethylbenzene and total xylenes
MTBE = Methyl tert-butyl ether
8020/8260 = EPA Test Methods
µg/l = Micrograms per liter
< = Less than laboratory method reporting limit
— = Not tested/analyzed
* = Corrected groundwater elevation based on presence of 0.07 foot free-product thickness.
1 = Analyzed for total lead
2 = Includes analyses for tert-amyl methyl ether (TAME), ethyl tert-butyl ether (ETBE), di-isopropyl ether (DIPE) and tert-butanol (TBA).
MTBE = 110 µg/l, TAME = 1.8 µg/l, TBA = 38 µg/l, ETBE = <0.5 µg/l, DIPE = <0.5 µg/l
3 = Includes analyses for TAME, ETBE, DIPE and TBA.
MTBE = 83 µg/l, TAME = 0.9 µg/l, TBA = 22 µg/l, ETBE = <0.5 µg/l, DIPE = <0.5 µg/l

TABLE 4

SUMMARY OF GROUNDWATER ELEVATION AND ANALYTICAL DATA

FORMER SONORA MAINTENANCE STATION

TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TOP OF CASING ELEVATION (MSL)	DEPTH TO GROUNDWATER (feet)	GROUNDWATER ELEVATION (MSL)	TPHg (µg/l)	TPHd (µg/l)	BENZENE (µg/l)	TOLUENE (µg/l)	ETHYL-BENZENE (µg/l)	TOTAL XYLENES (µg/l)	MTBE 8260 (µg/l)	FOCs (µg/l)
MW-9	10/31/2002	1,978.45	10.83	1,967.62	51,000	13,000	2,400	9,200	3,700	19,000	105	—
MW-9	12/30/2003	1,978.45	9.41	1,969.04	55,000	23,000	710	6,700	2,400	10,000	<5	ND
MW-9	4/1/2004	1,978.45	9.13	1,969.32	46,000	18,000	490	4,700	2,100	6,300	<50	ND
MW-9	5/25/2004	1,978.45	9.96	1,968.49	36,800	19,900	1,080	3,640	2,420	6,300	96	ND
MW-9	5/17/2005	1,978.45	6.94	1,971.51	23,000	<50	100	1,900	1,300	4,500	<5	—
MW-9	3/26/2007	1,978.45	7.52	1,970.93	13,000	2,900	56	220	680	2,260	<5	—
MW-9	6/4/2007	1,978.45	7.96	1,970.49	16,000	3,100	350	340	880	2,680	<10	—
MW-9	9/11/2007	1,978.45	9.2	1,969.25	32,000	4,800	580	460	1,300	3,900	<0.5	—
MW-9	12/3/2007	1,978.45	9.74	1,968.71	39,000	4,700	640	690	1,900	6,900	210	—
MW-9	4/8/2008	1,978.45	7.74	1,970.71	23,000	4,600	170	80	79	310	49	—
MW-9	5/7/2008	1,978.41	8.07	1,970.34	20,000	3,400	420	470	760	2,000	160	—
MW-9	8/6/2008	1,978.41	9.32	1,969.09	30,000	640	600	600	1,800	3,500	110	—
MW-9	12/2/2008	1,978.41	9.54	1,968.87	40,000	3,100	630	790	2,200	7,700	160	—
MW-10	10/31/2002	1,980.53	9.07	1,971.46	140,000	54,000	4,500	11,000	1,600	10,000	39	—
MW-10	12/30/2003	1,980.53	8.24	1,972.29	130,000	7,800	2,800	12,000	1,600	9,100	<5	ND
MW-10	4/1/2004	1,980.53	7.60	1,972.93	73,000	23,000	2,900	11,000	1,600	9,400	<50	ND
MW-10	5/25/2004	1,980.53	8.29	1,972.24	65,100	31,600	3,940	13,200	1,910	10,900	45.8	ND
MW-10	5/17/2005	1,980.53	5.80	1,974.73	33,000	<50	750	2,800	840	4,500	<5	—
MW-10	3/26/2007	1,980.53	6.12	1,974.41	51,000	3,700	1,900	5,900	1,300	7,400	<10	—
MW-10	6/4/2007	1,980.53	6.37	1,974.16	48,000	5,000	2,500	7,400	1,900	9,800	<10	—
MW-10	9/11/2007	1,980.53	7.73	1,972.80	44,000	6,800	1,400	2,500	1,500	8,400	<0.5	—
MW-10	12/3/2007	1,980.53	8.26	1,972.27	52,000	6,200	3,100	4,900	1,500	9,500	33	—
MW-10	4/8/2008	1,980.53	6.19	1,974.34	62,000	11,000	3,000	5,300	2,300	11,100	<5.0	—
MW-10	5/7/2008	1,980.53	6.54	1,973.99	62,000	8,100	580	1,300	520	2,610	34	—

TABLE 4

SUMMARY OF GROUNDWATER ELEVATION AND ANALYTICAL DATA

FORMER SONORA MAINTENANCE STATION

TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TOP OF CASING ELEVATION (MSL)	DEPTH TO GROUNDWATER (feet)	GROUNDWATER ELEVATION (MSL)	TPHg (µg/l)	TPHd (µg/l)	BENZENE (µg/l)	TOLUENE (µg/l)	ETHYL-BENZENE (µg/l)	TOTAL XYLENES (µg/l)	MTBE 8260 (µg/l)	FOCs (µg/l)
MW-10	8/6/2008	1,980.53	7.77	1,972.76	51,000	1,800	2,800	5,300	2,300	10,300	42	—
MW-10	12/2/2008	1,980.53	8.04	1,972.49	58,000	3,900	2,300	4,300	2,200	11,600	30	—
MW-11	10/31/2002	1,990.70	18.88	1,971.82	2,200	1,000	5.1	3.8	3.6	9.4	120	—
MW-11	12/30/2003	1,990.70	18.19	1,972.51	270	<50	1.6	<0.5	<0.5	<0.5	170	ND
MW-11	4/1/2004	1,990.70	17.52	1,973.18	120	<50	<0.5	0.7	<0.5	0.9	150	ND
MW-11	5/25/2004	1,990.70	18.21	1,972.49	95.9	<50	<0.5	<0.5	<0.5	<0.5	125	ND
MW-11	5/17/2005	1,990.70	15.72	1,974.98	300	<50	<2.0	<2.0	<2.0	<2.0	85	—
MW-11	3/26/2007	1,990.70	16.15	1,974.55	85	<50	<0.5	<0.5	<0.5	<1.0	30	—
MW-11	6/4/2007	1,990.70	16.48	1,974.22	76	<50	<0.5	<0.5	<0.5	<1.0	41	—
MW-11	9/11/2007	1,990.70	17.76	1,972.94	71	<50	<0.5	<0.5	<0.5	<1.0	31	—
MW-11	12/3/2007	1,990.70	18.24	1,972.46	200	<50	<0.5	<0.5	<0.5	<1.0	44	—
MW-11	4/8/2008	1,990.70	16.26	1,974.44	58	<50	<0.5	<0.5	<0.5	<1.0	44	—
MW-11	5/7/2008	1,990.72	16.64	1,974.08	63	73	<0.5	<0.5	<0.5	<1.0	45	—
MW-11	8/6/2008	1,990.72	17.77	1,972.95	100	<50	<0.5	<0.5	<0.5	<1.0	29	—
MW-11	12/2/2008	1,990.72	17.98	1,972.74	75	56	<0.5	<0.5	<0.5	<1.0	35	—
MW-12	10/31/2002	1,991.35	16.93	1,974.42	100	<50	<0.5	<0.5	<0.5	<0.5	110	—
MW-12	12/30/2003	1,991.35	16.24	1,975.11	60	<50	<0.5	<0.5	<0.5	<0.5	150	ND
MW-12	4/1/2004	1,991.35	15.70	1,975.65	93	<50	<0.5	<0.5	<0.5	0.6	110	ND
MW-12	5/25/2004	1,991.35	16.37	1,974.98	80.2	<50	<0.5	2.1	<0.5	3	99.9	ND
MW-12	5/17/2005	1,991.35	14.04	1,977.31	100	<50	<2.0	<2.0	<2.0	<2.0	60	—
MW-12	3/26/2007	1,991.35	14.55	1,976.80	<50	<50	<0.5	<0.5	<0.5	<1.0	14	—
MW-12	6/4/2007	1,991.35	14.84	1,976.51	71	<50	<0.5	<0.5	<0.5	<1.0	40	—
MW-12	9/11/2007	1,991.35	16.09	1,975.26	61	<50	<0.5	<0.5	<0.5	<1.0	21	—
MW-12	12/3/2007	1,991.35	16.52	1,974.83	220	<50	<0.5	<0.5	<0.5	<1.0	25	—

TABLE 4

SUMMARY OF GROUNDWATER ELEVATION AND ANALYTICAL DATA

FORMER SONORA MAINTENANCE STATION

TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TOP OF CASING ELEVATION (MSL)	DEPTH TO GROUNDWATER (feet)	GROUNDWATER ELEVATION (MSL)	TPHg (µg/l)	TPHd (µg/l)	BENZENE (µg/l)	TOLUENE (µg/l)	ETHYL-BENZENE (µg/l)	TOTAL XYLENES (µg/l)	MTBE 8260 (µg/l)	FOCs (µg/l)
MW-12	4/8/2008	1,991.35	14.57	1,976.78	<50	<50	<0.5	<0.5	<0.5	<1.0	25	—
MW-12	5/7/2008	1,991.32	15.02	1,976.30	57	68	<0.5	<0.5	<0.5	<1.0	36	—
MW-12	8/6/2008	1,991.32	15.97	1,975.35	150	<50	<0.5	<0.5	<0.5	<1.0	16	—
MW-12	12/2/2008	1,991.32	16.10	1,975.22	<50	55	<0.5	<0.5	<0.5	<1.0	5.3	—
MW-13	12/30/2003	1,991.29	22.39	1,968.90	1,200	500	9.1	1.3	2.7	17	8.7	ND
MW-13	4/1/2004	1,991.29	21.70	1,969.59	1,900	830	<0.5	1.9	46	11	13	ND
MW-13	5/25/2004	1,991.29	22.48	1,968.81	2,590	1,250	9.1	2.7	77.1	34.3	7.9	ND
MW-13	5/17/2005	1,991.29	19.96	1,971.33	4,600	<50	<20	<20	120	130	<5	—
MW-13	3/26/2007	1,991.29	20.34	1,970.95	2,700	530	1.6	0.55	52	12.4	<0.5	—
MW-13	6/4/2007	1,991.29	20.79	1,970.50	3,700	640	2.4	<0.5	65	21	<0.5	—
MW-13	9/11/2007	1,991.29	22.02	1,969.27	4,200	1,400	2	<0.5	63	19.9	<0.5	—
MW-13	12/3/2007	1,991.29	22.43	1,968.86	3,000	630	0.78	<0.5	45	12.6	11	—
MW-13	4/8/2008	1,991.29	20.55	1,970.74	4,500	840	6.4	<0.5	55	27	9.8	—
MW-13	5/7/2008	1,991.29	20.95	1,970.34	5,800	1,000	7.4	0.61	58	34.2	9	—
MW-13	8/6/2008	1,991.29	22.06	1,969.23	5,500	270	2.1	<0.5	51	22.5	<0.5	—
MW-13	12/2/2008	1,991.29	22.18	1,969.11	3,500	1,100	0.61	<0.5	47	9.8	5.5	—
MW-14	12/30/2003	1,977.84	9.81	1,968.03	<50	<50	<0.5	<0.5	<0.5	<0.5	22	ND
MW-14	4/1/2004	1,977.84	9.20	1,968.64	<50	<50	<0.5	<0.5	<0.5	<0.5	53	ND
MW-14	5/25/2004	1,977.84	9.99	1,967.85	54.7	<50	<0.5	<0.5	<0.5	<0.5	117	ND
MW-14	5/17/2005	1,977.84	Not accessible since 2005		—	—	—	—	—	—	—	—
MW-15	12/30/2003	1,974.69	7.59	1,967.10	63	260	<0.5	<0.5	<0.5	<0.5	120	ND
MW-15	4/1/2004	1,974.69	7.26	1,967.43	140	<50	<0.5	<0.5	<0.5	<0.5	320	ND
MW-15	5/25/2004	1,974.69	8.03	1,966.66	96.8	<50	<0.5	<0.5	<0.5	<0.5	286	ND
MW-15	5/17/2005	1,974.69	5.44	1,969.25	500	<50	<2.0	<2.0	<2.0	<2.0	650	—

TABLE 4

SUMMARY OF GROUNDWATER ELEVATION AND ANALYTICAL DATA

FORMER SONORA MAINTENANCE STATION

TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TOP OF CASING ELEVATION (MSL)	DEPTH TO GROUNDWATER (feet)	GROUNDWATER ELEVATION (MSL)	TPHg (µg/l)	TPHd (µg/l)	BENZENE (µg/l)	TOLUENE (µg/l)	ETHYL-BENZENE (µg/l)	TOTAL XYLENES (µg/l)	MTBE 8260 (µg/l)	FOCs (µg/l)
MW-15	3/26/2007	1,974.69	5.78	1,968.91	550	<50	<0.5	<0.5	<0.5	<1.0	360	—
MW-15	6/4/2007	1,974.69	6.22	1,968.47	500	<50	<0.5	<0.5	<0.5	<1.0	510	—
MW-15	9/11/2007	1,974.69	7.24	1,967.45	370	56	<0.5	<0.5	<0.5	<1.0	280	—
MW-15	12/3/2007	1,974.69	7.82	1,966.87	470	<50	<0.5	<0.5	<0.5	<1.0	330	—
MW-15	4/8/2008	1,974.69	5.96	1,968.73	210	74	<0.5	<0.5	<0.5	<1.0	320	—
MW-15	5/7/2008	1,974.70	6.30	1,968.40	240	91	<0.5	<0.5	<0.5	<1.0	330	—
MW-15	8/6/2008	1,974.70	7.39	1,967.31	210	<50	<0.5	<0.5	<0.5	<1.0	200	—
MW-15	12/2/2008	1,974.70	7.60	1,967.10	170	130	<0.5	<0.5	<0.5	<1.0	220	—
MW-16	5/7/2008	1,978.19	19.33	1,958.86	55	250	<0.5	<0.5	<0.5	<1.0	<0.5	—
MW-16	8/6/2008	1,978.19	21.32	1,956.87	<50	<50	<0.5	<0.5	<0.5	<1.0	<0.5	—
MW-16	12/2/2008	1,978.19	21.66	1,956.53	<50	61	<0.5	<0.5	<0.5	<1.0	<0.5	—
MW-17	5/7/2008	1,988.15	9.23	1,978.92	130	92	<0.5	<0.5	<0.5	<1.0	110	—
MW-17	8/6/2008	1,988.15	10.19	1,977.96	180	<50	<0.5	<0.5	<0.5	<1.0	160	—
MW-17	12/2/2008	1,988.15	10.65	1,977.50	140	74	<0.5	<0.5	<0.5	<1.0	150	—

Notes:

TOC = Top of casing

MSL = Mean sea level

TPHg = Total petroleum hydrocarbons as gasoline

TPHd = Total petroleum hydrocarbons as diesel

MTBE = Methyl tert-butyl ether

FOCs = Fuel oxygenate compounds including di-isopropyl ether, tert-amyl methyl ether, ethyl tert-butyl ether and tert-butanol

µg/l = Micrograms per liter

<, ND = Less than laboratory method reporting limit

— = Not tested

TABLE 5

SUMMARY OF GROUNDWATER ANALYTICAL DATA – RNA PARAMETERS

FORMER SONORA MAINTENANCE STATION

TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	SULFATE (mg/l)	NITRATE (mg/l)	DISSOLVED IRON (µg/l)	DISSOLVED MANGANESE (µg/l)	METHANE (µg/l)	DISSOLVED OXYGEN (mg/l)	ORP (mV)	pH
MW-9	3/26/2007	1.6	0.16	240	4,500	13	0.02	24	6.71
MW-9	6/4/2007	<1.0	<0.10	250	8,200	32	0.03	20	6.45
MW-9	9/11/2007	1.8	<0.10	550	7,100	96	0.03	17	6.39
MW-9	12/3/2007	<50	<5.0	10,000	9,800	220	0.05	28	6.31
MW-9	4/8/2008	<1.0	<0.10	390	7,300	35	0.1	44	6.87
MW-9	5/7/2008	<1.0	<0.10	140	7,300	42	0.16	46	6.92
MW-10	3/26/2007	<1.0	<0.10	4,100	2,700	380	0.02	36	6.65
MW-10	6/4/2007	<1.0	<0.10	8,400	6,000	460	0.02	41	6.37
MW-10	9/11/2007	1.6	<0.10	8,400	6,300	500	0.02	16	6.41
MW-10	12/3/2007	<50	<5.0	12,000	7,900	1,100	0.03	15	6.31
MW-10	4/8/2008	<1.0	<0.10	4,300	7,300	790	0.1	50	6.77
MW-10	5/7/2008	<1.0	<0.10	3,000	7,200	730	0.07	25	6.81
MW-11	3/26/2007	28	0.84	<200	<200	1.7	1.02	29	6.55
MW-11	6/4/2007	24.5	0.69	62	79	<1.0	0.12	251	6.52
MW-11	9/11/2007	30	0.57	69	43	<1.0	0.07	189	6.76
MW-11	12/3/2007	25	0.54	1,400	130	<1.0	0.12	201	6.55
MW-11	4/8/2008	23	0.61	<10	79	<1.0	0.22	101	6.77
MW-11	5/7/2008	30	0.65	110	39	<1.0	0.12	152	6.55
MW-12	3/26/2007	31	1.3	260	250	2.8	1.07	30	6.75
MW-12	6/4/2007	27.9	1.25	64	160	2.3	0.15	240	6.9
MW-12	9/11/2007	36	1.2	65	210	3.8	0.07	215	6.63
MW-12	12/3/2007	27	1.1	400	420	6.6	0.17	207	6.56

TABLE 5

SUMMARY OF GROUNDWATER ANALYTICAL DATA – RNA PARAMETERS

FORMER SONORA MAINTENANCE STATION

TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	SULFATE (mg/l)	NITRATE (mg/l)	DISSOLVED IRON (µg/l)	DISSOLVED MANGANESE (µg/l)	METHANE (µg/l)	DISSOLVED OXYGEN (mg/l)	ORP (mV)	pH
MW-12	4/8/2008	24	1	<10	180	3.9	0.53	113	6.82
MW-12	5/7/2008	31	1.3	110	190	<1.0	0.12	161	6.66
MW-13	3/26/2007	1.5	<0.10	<100	7,100	38	1.72	—	6.87
MW-13	6/4/2007	<1.0	<0.10	210	8,200	36	0.16	152	6.54
MW-13	9/11/2007	3.3	<0.10	130	7,000	47	0.04	13	6.53
MW-13	12/3/2007	<50	<5.0	3,000	7,900	74	0.07	21	6.62
MW-13	4/8/2008	<1.0	<0.10	150	7,500	74	0.18	10	6.87
MW-13	5/7/2008	<1.0	<0.10	180	8,400	65	0.07	42	6.5
MW-15	3/26/2007	26	1.4	79	<50	6	0.28	30	6.58
MW-15	6/4/2007	23.7	1.24	73	<10	3.9	0.22	171	6.36
MW-15	9/11/2007	25	0.8	61	<10	1.2	0.13	191	6.36
MW-15	12/3/2007	21	0.72	120	<10	<1.0	0.18	176	6.43
MW-15	4/8/2008	28	0.9	<10	<10	1.6	0.37	67	6.88
MW-15	5/7/2008	35	1.1	140	<10	<1.0	0.5	189	6.5

Notes:

ORP = Oxidation Reduction Potential

RNA = Remediation by natural attenuation

mg/l = Milligrams per liter

µg/l = Micrograms per liter

mV = Millivolts

< = Less than laboratory method reporting limit

— = Not measured

TABLE 6

SUMMARY OF GRAB GROUNDWATER ANALYTICAL DATA - 2008

OLD SONORA MAINTENANCE STATION

TUOLUMNE COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE DATE	TPHg (µg/l)	TPHd (µg/l)	B (µg/l)	T (µg/l)	E (µg/l)	X (µg/l)	MTBE (µg/l)
GS1	1/9/2008	120	110	<0.50	<0.50	<0.50	<1.0	32
GS3	1/9/2008	<50	99	<0.50	<0.50	<0.50	<1.0	<0.50
GS4	1/9/2008	<50	<50	<0.50	<0.50	<0.50	<1.0	<0.50
GS5	1/10/2008	210	68	<0.50	<0.50	<0.50	<1.0	160
GS6	1/10/2008	60	58	<0.50	<0.50	<0.50	<1.0	14
GS7	1/10/2008	<50	58	<0.50	<0.50	<0.50	<1.0	0.83
GS8	1/10/2008	<50	<50	<0.50	<0.50	<0.50	<1.0	2.9

Notes:

TPHg = Total petroleum hydrocarbons as gasoline

TPHd = Total petroleum hydrocarbons as diesel

BTEX = Benzene, toluene, ethylbenzene and total xylenes

MTBE = Methyl tert-butyl ether

µg/l = Micrograms per liter

< = Less than laboratory method reporting limit

APPENDIX A

BORING LOG

BORING NO. E1 (soils exploration) T. Lamb 10/3/87

DEPTH FEET	SOIL CLASSIFICATION SYMBOL	SAMPLE/TEST NUMBER	SOIL DESCRIPTION		* OVM READINGS/COMMENTS
2–4–6			Brown, damp, loose	Silty fine to coarse sand (SM)	Filled ground
8–10–12–14–16–18		E1-8.5 E1-9.0	Light brown, damp, dense	Fine to very coarse sand (SW)	Weathered granitic rock
20–22–24–26–28–30–32–34–36–38–40			Bottom of hole 19 ft.		

*portable Organic Vapor Meter (OVM) reading (volume/volume from bagged soil samples)

PROJECT NO. Maint. Station TC03H 7

APPLIED HYDROGEOLOGIC consultants

BORING LOG

BORING NO. E2 (soils exploration) T. Lamb 10/3/87

DEPTH FEET	SOIL CLASSIFICATION SYMBOL	SAMPLE/TEST NUMBER	SOIL DESCRIPTION		OVM READINGS/COMMENTS
2–8			Light brown, damp, loose	Silty fine to coarse sand (SM)	Filled ground
10–12		E2-12.0	Green*, damp, dense	Fine to coarse sand (SW)	Weathered granitic rock *possibly discolored from hydrocarbons 500 PPM
14–16			Light green, very dense		2500 PPM
18		E2-19.0			1000 PPM
20–22			Brown, damp, dense	Fine to very coarse sand (SW)	700 PPM
24		E2-25.0	Moist		
26			Bottom of hole 26 ft.		
28–40					

PROJECT NO.
Maint. Station
TC03H.7

APPLIED HYDROGEOLOGIC consultants

BORING LOG

BORING NO. E3 (soils exploration) T. Lamb 10/3/87

DEPTH FEET	SOIL CLASSIFICATION SYMBOL	SAMPLE/TEST NUMBER	SOIL DESCRIPTION		OVM READINGS/COMMENTS
2			Brown, dry, medium dense	Silty fine to coarse sand (SM)	2 in. A.C. pavement
4			Damp		
6		E3-6.0	Green, damp, dense	Fine to coarse sand (SW)	Weathered granitic rock
8					
10					
12					
14		E3-14.0			1500 PPM
16					
18					
20		E3-20.0			2000 PPM
22					
24					
26		E3-25.0	Green brown, moist	Fine to very coarse sand (SW)	
28					
30			Bottom of hole 28 ft.		
32					
34					
36					
38					
40					

PROJECT NO.
Maint. Station
TC03H.7

APPLIED HYDROGEOLOGIC consultants

BORING LOG

BORING NO. E4 (soils exploration) — T. Lamb 10/3/87

DEPTH FEET	SOIL CLASSIFICATION SYMBOL	SAMPLE/TEST NUMBER	SOIL DESCRIPTION		OVM READINGS/COMMENTS
2–4			Red brown, damp, loose	Silty fine to medium sand (SM)	Filled ground
6–8		E4-7.0	Brown, damp, medium dense	Fine to coarse sand (SW)	Weathered granitic rock 600 PPM
10–12		E4-11.0	Green brown, dense	Gradual change	800 PPM
14–16		E4-17.0		Fine to very coarse sand (SW)	600 PPM
18–20					
22		E4-22.0	Brown		600 PPM
24–26			moist		600 PPM
28			Bottom of hole 27 ft.		
30–40					

PROJECT NO. Maint. Station TC03H 7

APPLIED HYDROGEOLOGIC consultants